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ARITHMETIC READER

FOR SECOND GRADE

DEPARTMENT OF EDUCATION
LELAND STANFORD JUNIOR UNIVERSITY

BY
FRANK H. HALL

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1898

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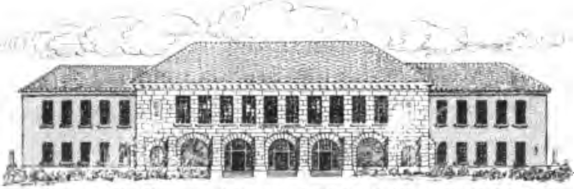

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THE

ARITHMETIC READER,

FOR

SECOND GRADE PUPILS.

BY

FRANK H. HALL,

AUTHOR OF

"HALL'S HELPS IN THE STUDY OF HISTORY, OR THE BACKBONE OF UNIVERSAL HISTORY." "HALL'S ARITHMETIC OF THE FARM AND WORKSHOP."

CHICAGO:
SCOTT, FORESMAN & CO.
1898.

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DEPARTMENT OF EDUCATION
LELAND STANFORD JUNIOR UNIVERS

PREFACE.

Much of the difficulty in arithmetical training, is due to the inability of the pupil to read the book which is put into his hands. Often at the outset, he is required to "learn definitions" which are to him a meaningless jumble of words. He is then taught to perform mechanically certain fundamental operations. In the problems which follow, his attention is riveted chiefly upon the mere figures. Thus it happens that in a little time he has acquired the habit of "juggling with figures," and blindly working for the answer.

It is believed that there is a place in our courses of study for a book, or a series of books, by which the pupil may be taught to read arithmetical problems and gradually led into the correct use of mathematical terms. It is this conviction that has given birth to THE ARITHMETIC READER. No pictures appear upon its pages. These would in part defeat the purpose of the book which is to aid the pupil in getting thought from *printed words*. It is expected that the facts of number appearing upon any page will be thoroughly taught by means of objects, *before* the pupil is asked to read the page.

Part I. suggests the order and amount of number work that should be taught orally in the First Grade; but the book should not be put into the hands of the pupil until he is able to read well in a second reader.

Part II. suggests the order and amount of number work for the Second Grade. Page 96 is inserted to indicate the bearing of the book upon the subsequent work of the pupil.

SUGGESTIONS TO TEACHERS.

1. Do not allow the pupil to attempt to read any page of this book until he has mastered the facts of number and can recognize readily all the words found thereon. The new facts of number, if any, appear in fine print at the top of each page. All the fine-print matter is for the direction of the teacher. It should be omitted by the pupil. All new words appear in the word-lists. Drill upon these until the pupil can pronounce them in any order at the rate of 100 words per minute.

2. To teach the "meaning and use" of a term, do not require the pupil to memorize the formal definition; rather, *use* the term correctly and lead the pupil *to use it* many times. *The word must become a part of the pupil's vocabulary.*

Slow work should not be tolerated. The teacher can easily read almost any page of the book in one minute. The pupil that has *mastered the number facts and the words*, can read a page in two minutes or less. A class should be able to read five or even ten review pages at a single recitation. If this cannot be done, *drill upon the word-lists and upon the number facts. Drill !* DRILL ! DRILL !

4. For seat work, the pupil may be required to copy a page in full, filling all the blanks. The suggested "slate work" should not be omitted.

THE ARITHMETIC READER.

PART I.

Teach the following orally. Use objects.

$1 + 1 = 2$
$2 + 1 = 3$
$3 + 1 = 4$
$2 + 2 = 4$

$2 - 1 = 1$
$3 - 1 = 2$
$4 - 1 = 3$
$4 - 2 = 2$

$3 - 2 = 1$
$4 - 3 = 1$
$4 - 4 = 0$
$3 - 3 = 0$

WORD-LIST.

one
two
three
four

he
him
his
had

and
are
less
then

book
books
gave
more

John
apple
apples
mamma

1. One and one are —.
2. Two and one are —.
3. Three less one are —.
4. Three less two are —.

5. Two apples and two apples are — apples.
6. Four apples less one apple are — apples.
7. One book and three books are — books.
8. Two books less one book are — book.
9. John had three apples; his mamma gave him one more; he then had — apples.

Teach the following orally. Use objects

2 twos = 4
½ of 4 is 2
½ of 2 is 1

4 = 2 twos
2 is ½ of 4
1 is ½ of 2

NEW WORDS.

half
twos
spent
cent
George
money
each
cost
of
is

1. Two twos are ——.
2. One and two are ——.
3. One half of four is ——.
4. Four less three are ——.
5. Four is —— twos.
6. Two is one half of ——.

7. One half of two apples is —— apple.
8. Two apples are one half of —— apples.
9. Four books less three books are —— book.
10. One book and two books are —— books.
11. One half of four apples is —— apples.
12. One apple is one half of —— apples.

13. At one cent each, three apples cost —— cents, and four apples cost —— cents.

14. At two cents each, two apples cost —— cents.

15. George had four cents; he spent one half of his money; he then had —— cents.

Teach the following orally. Use the measures.

2 pints = 1 quart. 1 quart = 2 pints.

NEW WORDS.

pint
quart
James
what
part
buy
how
many
there
sold
milk
at
for
in
can

1. One quart is —— pints.
2. Four pints are —— quarts.
3. Two quarts are —— pints.
4. Two pints are —— quart.

5. At two cents a pint, one quart of milk costs —— cents.

6. Two is what part of four? Two is —— —— of four.

7. One pint is what part of a quart? One pint is —— —— of a quart.

8. At four cents a quart, one pint of milk costs —— cents.

9. At two cents a pint, for four cents you can buy —— pints of milk.

10. How many pints in one and one half quarts? There are —— pints in one and one half quarts.

11. James had two quarts of milk; he sold one pint; he then had —— —— —— ——.

Teach the following orally. Use objects.

$4 + 1 = 5$
$3 + 2 = 5$
$5 - 1 = 4$
$5 - 2 = 3$
$5 - 3 = 2$
$5 - 4 = 1$

NEW WORDS.

five
more
two-cent
postage
green
stamps
they
bought
over
yes

1. Three and two are —.
2. Five less two are —.
3. Two twos are —.
4. Two twos and one more are —.
5. Five less three are —.

6. How many twos in five? There are — twos and one over, in five.

7. How many quarts in five pints? There are — quarts and — pint over, in five pints.

8. Two quarts and one pint are how many pints? Two quarts and one pint are — pints.

9. Did you ever see any two-cent postage stamps. Yes. They are green. They cost — cents each.

10. Two two-cent stamps cost — cents.

11. George had five cents; he bought two two-cent stamps; he then had — cent.

Teach the following orally. Use objects.

½ of 5 is 2½ **½ of 3 is 1½**
2½ is ½ of 5 **1½ is ½ of 3**

NEW WORDS.

Henry
candy
some
sticks
left
them
did
eat
ate
all

1. One half of four is —.
2. One half of five is —.
3. Two is one half of —.
4. Two and one half is one half of —.
5. One half of two is —.
6. One half of three is —.
7. One is one half of —.
8. One and one half is one half of —.

9. Two and one half apples are one half of how many apples? Two and one half apples are one half of — apples.

10. Henry had three apples; he gave one half of them to John; he then had — apples.

11. George bought some sticks of candy; he ate one half of all he bought and had two sticks left. How many sticks did he eat? He ate — sticks. How many sticks did he buy? He bought — sticks.

12. Two sticks are one half of — sticks.

Teach the following orally. Use objects.

$5 + 1 = 6$
$4 + 2 = 6$
$3 + 3 = 6$

$6 - 1 = 5$
$6 - 2 = 4$
$6 - 3 = 3$

$6 - 4 = 2$
$6 - 5 = 1$
6 = 3 twos

6 = 2 threes
3 twos = 6
2 threes = 6

NEW WORDS.

six when ball orange I

1. Three and three are —.
2. Six less four are —.
3. Two threes are —.
4. Six is — twos.

5. Four and two are —.
6. Six less two are —.
7. Three twos are —.
8. Six is — threes.

9. Two balls and four balls are — balls.
10. Six balls less three balls are — balls.
11. Three two-cent stamps cost — cents.
12. When oranges cost three cents each, how many can you buy for six cents? I can buy — oranges for six cents.
13. Six pints are how many quarts? Six pints are — quarts.
14. Two quarts and one pint are how many pints? Two quarts and one pint are — pints.
15. At two cents a pint, for six cents you can buy — pints of milk.

Teach the following orally. Use objects.

½ of 6 is 3. **3 is ½ of 6.**

NEW WORDS.

Mary
much
than
both
as
she
paid
her

1. Three is one half —.
2. One half of three is —.
3. One half of six is —.
4. One half of four apples is — apples.
5. One half of five apples is — apples.
6. One half of six apples is — apples.
7. Three apples are one half of — apples.

8. Mary had six cents; she spent one half of her money; she then had — cents.

9. James paid four cents for an orange and half as many cents for an apple. How much did the apple cost? The apple cost — cents. How much did the orange and the apple both cost? Both cost — cents. How many cents did the orange cost more than the apple? The orange cost — cents more than the apple.

10. When one quart of milk costs six cents, one pint costs — cents.

Teach the following orally. Use objects.

$\frac{1}{3}$ of 6 is 2. 2 is $\frac{1}{3}$ of 6.
$\frac{2}{3}$ of 6 are 4. 4 is $\frac{2}{3}$ of 6.

NEW WORDS.

third doll lemon pencil my

1. One third of six is —.
2. Two thirds of six are —.
3. Two is one third of —.
4. Four is two thirds of —.

5. Two is what part of four? Two is — — of four.

6. Two is what part of six? Two is — — of six.

7. Three is what part of six? Three is — — of six.

8. Four is what part of six? Four is — — of six.

9. James had six cents; he paid one third of his money for a lemon; he then had — cents.

10. Mary had six cents; she paid two thirds of her money for an orange; she then had — cents.

11. My doll cost six cents and my pencil cost one third as much as my doll. Can you tell how much my pencil cost?

Teach the following orally. Use objects.

$6 + 1 = 7.$ $7 - 1 = 6.$ $7 - 4 = 3.$
$5 + 2 = 7.$ $7 - 2 = 5.$ $7 - 5 = 2.$
$4 + 3 = 7.$ $7 - 3 = 4.$ $7 - 6 = 1.$

NEW WORDS.

seven pair girl

1. Four and three are —.
2. Seven less two are —.
3. Three twos are —.
4. Three twos and one are —.
5. Seven less four are —.
6. Five and two are —.
7. Two threes are —.
8. Two threes and one more are —.

9. A pair is two. Two pairs are —. Three pairs are —. Seven is three pairs and —.

10. How many quarts in seven pints? There are — quarts and — pint in seven pints.

11. George had seven cents; he bought two two-cent stamps; he then had — cents.

12. Seven girls are how many more than three girls? Seven girls are — more than three girls.

13. How many twos make six?

Teach the following orally. Use objects.

½ of 7 = 3½. 3½ = ½ of 7.
⅓ of 7 = 2⅓. 2⅓ = ⅓ of 7.

NEW WORDS.

Sarah
equally
divided
cookie
among
sister
receive
received

1. One half of six is —.
2. One half of seven is —.
3. Three is one half of —.
4. Three and one half is one half of —
5. One third of six is —.
6. One third of seven is —.
7. Two is one third of —.
8. Two and one third is one third of —.

9. One half of six lemons is — lemons.
10. One half of seven lemons is — lemons.
11. One third of six apples is — apples.
12. One third of seven apples is — apples.
13. Sarah had seven cookies; she gave one half of them to John; she then had — cookies.
14. George divided seven apples equally among his three sisters. How many apples did each receive? Each received — apples.

Teach the following orally. Use objects.

$7 + 1 = 8$.
$6 + 2 = 8$.
$5 + 3 = 8$.
$4 + 4 = 8$.

$8 - 1 = 7$.
$8 - 2 = 6$.
$8 - 3 = 5$.
$8 - 4 = 4$.

$8 - 5 = 3$.
$8 - 6 = 2$.
$8 - 7 = 1$.
$8 - 8 = 0$.

4 twos = 8.
2 fours = 8.
8 = 4 twos.
8 = 2 fours.

NEW WORDS.

eight hat peach peaches

1. Six and two are —.
2. Eight less five are —.
3. Two fours are —.
4. Eight is — twos.
5. Five and three are —.
6. Eight less three are —.
7. Four twos are —.
8. Eight is — fours.

9. Four hats and four hats are — hats.
10. Eight hats less two hats are — hats.
11. Four two-cent stamps cost — cents.
12. When peaches cost four cents each, how many can you buy for eight cents? I can buy — peaches for eight cents.
13. Four quarts are how many pints? Four quarts are — pints.
14. At two cents a pint, for eight cents you can buy — pints.
15. Seven pints are how many quarts?

Teach the following orally. Use objects.

$\frac{1}{2}$ of 8 is 4. **$\frac{2}{4}$ of 8 are 4.**
$\frac{1}{4}$ of 8 is 2. **$\frac{3}{4}$ of 8 are 6.**

NEW WORDS.

William fourth slate paper top

1. One fourth of eight is ——.
2. Two fourths of eight are ——.
3. Two is one fourth of ——.
4. Three fourths of eight are ——.
5. Four is two fourths of ——.
6. One half of eight is ——.
7. Six is three fourths of ——.

8. Four is what part of eight? Four is —— —— of eight.

9. Two is what part of eight? Two is —— —— of eight.

10. Six is what part of eight? Six is —— —— of eight.

11. William had eight cents; he paid one fourth of his money for paper; he then had —— cents.

12. My slate cost eight cents and my top cost three fourths as much as my slate. Can you tell how much my top cost?

13. Three fourths of eight balls are —— balls.

Teach the following orally. Use the measures.

4 quarts = 1 gallon.

NEW WORDS.

gallon
morning
night
day
does
give
hind
foot
feet
our
cat
front
cow
toe
ear

1. Four quarts are — gallon.
2. Eight quarts are — gallons.
3. One gallon is — quarts.
4. One half gallon is — quarts.

5. William had two gallons of milk; he sold two quarts; he then had — —.

6. Our cow gives a gallon of milk in the morning and three quarts at night. How many quarts does she give each day? She gives — quarts each day.

7. In one quart there are — pints. How many pints in one gallon? There are — pints in one gallon.

8. A cat has — feet; two cats have — feet.

9. A cat has — ears; three cats have — ears.

10. On the front foot of a cat there are — toes; on the hind foot, — toes; on both hind feet, — toes.

Teach the following orally. Use objects

8 + 1 = 9. 9 — 1 = 8. 9 — 5 = 4.
7 + 2 = 9. 9 — 2 = 7. 9 — 6 = 3.
6 + 3 = 9. 9 — 3 = 6. 9 — 7 = 2.
5 + 4 = 9. 9 — 4 = 5. 9 — 8 = 1.
3 threes = 9. 9 = 3 threes.

NEW WORDS.

Peter banana nine apiece

1. Six and three are —.
2. Nine less four are —.
3. Four twos are —.
4. Four twos and one are —.
5. Nine is — threes.
6. Five and four are —.
7. Nine less two are —.
8. Two fours are —.
9. Two fours and one are —.
10. Two threes are —. Three threes are —.
11. Two twos are —. Three twos are —.
12. Four twos are —. Two fours are —.
13. Nine is four pairs and —.

14. When bananas cost three cents apiece, how many can you buy for nine cents? I can buy — for nine cents.

15. Nine quarts are how many gallons? Nine quarts are —.

16. Peter had nine cents; he bought four two-cent stamps; he then had — cent.

Teach the following orally. Use objects.

$\frac{1}{3}$ of 9 is 3.
$\frac{2}{3}$ of 9 are 6.

3 is $\frac{1}{3}$ of 9.
6 is $\frac{2}{3}$ of 9.

$\frac{1}{2}$ of 9 is $4\frac{1}{2}$.
$4\frac{1}{2}$ is $\frac{1}{2}$ of 9.

NEW WORDS.

Samuel
walnut
Kate
think
school
brought
to
now

1. One third of nine is —— .
2. Two thirds of nine are——.
3. Three is one third of ——.
4. Six is two thirds of ——.
5. One half of nine is ——.

6. Three is what part of nine? Three is —— —— of nine.

7. Six is what part of nine? Six is —— —— of nine.

8. Samuel had nine cents; he paid one third of his money for a banana; he then had —— cents.

9. Kate had nine cents; she paid two thirds of her money for a lemon; she then had —— cents.

10. John now has three walnuts which are one third of all he brought to school. Can you tell how many walnuts he brought to school? I think I can. Three walnuts are one third of —— walnuts.

Teach the following orally. Use objects.

9 + 1 = 10.
8 + 2 = 10.
7 + 3 = 10.
6 + 4 = 10.
5 + 5 = 10.

10 — 1 = 9.
10 — 2 = 8.
10 — 3 = 7.
10 — 4 = 6.
10 — 5 = 5.

10 — 6 = 4.
10 — 7 = 3.
10 — 8 = 2.
10 — 9 = 1.
½ of 10 = 5.

5 twos = 10.
2 fives = 10.
10 = 5 twos.
10 = 2 fives.
5 is ½ of ten.

NEW WORDS.

ten bag pop-corn cream

1. Eight and two are ——.
2. Ten less four are ——.
3. Five twos are ——.
4. Ten is —— fives.
5. One half of ten is ——.
6. Seven and three are ——.
7. Ten less two are ——.
8. Two twos are ——. Three twos are ——.
9. Four twos are ——. Five twos are ——.
10. Three threes and one are ——.
11. Two fours are ——. Two fives are ——.

12. At five cents a bag, how many bags of pop-corn can you buy for ten cents? I can buy —— bags for ten cents.

13. Ten quarts are how many gallons? Ten quarts are —— gallons and —— quarts.

14. Ten pints of cream are how many quarts? Ten pints are —— quarts.

15. Five two-cent stamps cost —— cents.

Teach the following orally. Use objects.

$\frac{1}{5}$ of 10 is 2.
$\frac{2}{5}$ of 10 are 4.
$\frac{3}{5}$ of 10 are 6.
$\frac{4}{5}$ of 10 are 8.

NEW WORDS.

fifth papa washing dishes

1. One fifth of ten is —.
2. Two fifths of ten are —.
3. Two is one fifth of —.
4. Four is two fifths of —.
5. Three fifths of ten are —.
6. Four fifths of ten are —.
7. Six is three fifths of —.
8. Eight is four fifths of —.
9. Five is one half of —.
10. Two is — — of ten.
11. Six is — — of ten.
12. Four is — — of ten.
13. Eight is — — of ten.

14. Mary's papa gave her ten cents for washing dishes; she spent one fifth of the money; she then had — cents.

15. John has ten walnuts; James has four fifths as many. How many has James? James has — walnuts.

16. Three fifths of ten are how many more than one half of ten?

Teach the meaning and use of the following characters:

+, to be read and; —, to be read less; =, to be read are or is; and the figures from 0 to 10.

NEW WORDS.

pin dog cup hen car

1. Five and four are ——. 5 and 4 are ——.
2. Ten less eight are ——. 10 less 8 are ——.
3. Six and three are ——. 6 and 3 are ——.
4. Nine less one are ——. 9 less 1 are ——.
5. Seven and two are ——. 7 and 2 are ——.

6. 5 and 3 are ——. $5 + 3 =$ $5 + 2 =$
7. 10 less 4 are ——. $10 - 4 =$ $10 - 5 =$
8. 6 and 2 are ——. $6 + 2 =$ $6 + 4 =$
9. 9 less 3 are ——. $9 - 3 =$ $9 - 2 =$
10. 7 and 1 are ——. $7 + 1 =$ $7 + 3 =$

11. 5 pins and 5 pins are —— pins.
12. 6 dogs less 2 dogs are —— dogs.
13. 4 cups and 3 cups are —— cups.
14. 7 hens less 4 hens are —— hens.
15. 4 cars and 5 cars are —— cars.
16. 8 pints less 5 pints are —— pints.
17. 2 balls and 6 balls are —— balls.
18. 6 quarts less 3 quarts are —— quarts.
19. 4 gallons and 4 gallons are —— gallons.

The following twenty-five primary combinations which appear in the preceding pages must be perfectly mastered. They should be taught orally in connection with objects. In doing this work the pupil must be led (1) to *perceive*, (2) to EXPRESS by spoken words, and (3) to MEMORIZE each of these fundamental facts. Formerly, many teachers required pupils to express and memorize *that which they did not perceive*. Latterly, some teachers seem to regard their work complete, when they have led their pupils to perceive and express that *which should be memorized.* When a pupil clearly perceives and says that three and two are five, it is time for him to memorize this fact.

Pupils should now read the following *rapidly, giving sums only*. Read first, by column downwards; second, by column upwards; third, by line from left to right; fourth, by line from right to left. Continue this drill until every pupil can give these twenty-five sums, in any order, in *thirty seconds or less*.

FOR DRILL.

$$\begin{array}{ccccc}
1 & 5 & 3 & 7 & 3 \\
\underline{1} & \underline{4} & \underline{3} & \underline{3} & \underline{1} \\[1em]
6 & 9 & 3 & 4 & 2 \\
\underline{3} & \underline{1} & \underline{2} & \underline{4} & \underline{1} \\[1em]
2 & 5 & 4 & 5 & 5 \\
\underline{2} & \underline{3} & \underline{2} & \underline{5} & \underline{1} \\[1em]
7 & 8 & 6 & 7 & 6 \\
\underline{1} & \underline{2} & \underline{1} & \underline{2} & \underline{2} \\[1em]
6 & 4 & 4 & 8 & 5 \\
\underline{4} & \underline{1} & \underline{3} & \underline{1} & \underline{2}
\end{array}$$

Teach the following orally. Use coins.

1 "nickel" = 5 cents.
1 dime = 10 cents.

NEW WORDS.

nickel
dime
back
postal
went
card
with
next
take
Arthur
earned
post-office

1. A postal card costs —— cent.
2. For a nickel I can buy —— postal cards.
3. For a dime I can buy —— postal cards.

4. Arthur went to the post-office with a dime, and bought 6 postal cards. He brought back —— cents.

5. George earned a "nickel" in one day and 4 cents the next day. In both days he earned —— cents.

6. When bananas are two cents apiece I can take a dime and buy —— bananas.

7. When oranges are five cents apiece I can take a dime and buy —— oranges.

8. How many toes has James on one foot? He has —— toes on one foot and —— toes on both feet.

9. 2 fours are ——. $4 + 4 =$
10. 2 fives are ——. $5 + 5 =$
11. 9 is —— fours and ——.

Teach the meaning and use of the words **add** and **sum.**

NEW WORDS.

add
sum
but
went
loaf
poor
Tom
old
snow
bread
baker
shoveling

1. Can you add 2 and 4? Yes. The sum of 2 and 4 is —.

2. What is the sum of 3 and 5? The sum of 3 and 5 is —.

3. The sum of two numbers is 5; one of the numbers is 3; the other number is —.

4. You may add 4 and 5. 4 + 5 =

5. Poor old Tom! He had no money and no bread. But he earned a dime by shoveling snow. He then went to the baker's and bought a loaf of bread for 6 cents and had — cents left.

6. The sum of two numbers is 7; one of the numbers is 4; the other number is —.

Copy and add.

3	4	1	2	7	5	6	2
2	2	3	5	2	3	1	2
1	3	5	1	1	1	3	2

Teach the meaning and use of the words **subtract** and **difference.**

In concrete problems in which the difference between two numbers of objects is to be found, the smaller group of objects is sometimes, but not always, a part of the larger group; thus, in the problem, 6 boys are how many more than 4 boys? there may be only 6 boys, 4 of whom are about to be dismissed; or there may be 6 boys in one class and 4 boys in another class. Both kinds of problems should be given, and the pupil should be led to see that in either case the answer is the difference between 4 boys and 6 boys which he knows to be 2 boys, *because* he has learned that 4 from (out of) 6 = 2.

NEW WORDS.

subtract	difference	Jane
between	Alice	were

1. The difference between 6 and 4 is —.
2. The sum of 6 and 4 is —.
3. The difference between 5 and 3 is —.
4. The sum of 5 and 3 is —.
5. The difference between 7 and 3 is —.
6. The sum of 7 and 3 is —.

7. Jane has 6 apples; Alice has 2 apples. How many more apples has Jane than Alice? Jane has — apples more than Alice.

8. Henry had 6 apples; he ate 2 of them. How many apples were left? — apples were left. The difference between 6 and 2 is —.

Copy and subtract:

10	9	8	10	9	8	7	6
4	6	2	5	5	4	5	4

Teach the meaning of the expressions

$\frac{1}{2}$, $\frac{1}{3}$, $\frac{2}{3}$, $\frac{1}{4}$, $\frac{2}{4}$, $\frac{3}{4}$, etc.

1. $\begin{cases} \text{4 pints} = \text{——— quarts.} \\ \text{4 quarts} = \text{——— pints.} \end{cases}$

2. $\begin{cases} \text{2 quarts} = \text{——— of a gallon.} \\ \text{2 gallons} = \text{——— quarts.} \end{cases}$

3. $\begin{cases} 4 + 6 = \\ 10 - 4 = \\ 10 - 6 = \end{cases}$

4. $\begin{cases} 5 + 4 = \\ 9 - 5 = \\ 9 - 4 = \end{cases}$

5. $\begin{cases} \text{4 twos} = \\ \text{6 is ——— twos.} \end{cases}$

6. $\begin{cases} \text{5 twos} = \\ \text{10 is ——— fives.} \end{cases}$

7. $\begin{cases} \text{4 is ——— twos.} \\ \text{2 fours} = \end{cases}$

8. $\begin{cases} \text{2 fives} = \\ \text{9 is ——— threes.} \end{cases}$

9. $\begin{cases} \frac{1}{2} \text{ of 4 is ———.} \\ \text{4 is } \frac{1}{2} \text{ of ———.} \end{cases}$

10. $\begin{cases} \text{3 is } \frac{1}{2} \text{ of ———.} \\ \frac{1}{2} \text{ of 3 is ———.} \end{cases}$

11. $\begin{cases} \frac{1}{2} \text{ of 5 is ———.} \\ \text{5 is } \frac{1}{2} \text{ of ———.} \end{cases}$

12. $\begin{cases} \text{2 is } \frac{1}{2} \text{ of ———.} \\ \frac{1}{2} \text{ of 2 is ———.} \end{cases}$

13. $\begin{cases} \frac{1}{3} \text{ of 3 is ———.} \\ \text{3 is } \frac{1}{3} \text{ of ———.} \\ \text{2 is ——— ——— of 4.} \end{cases}$

14. $\begin{cases} \frac{2}{3} \text{ of 6 are ———.} \\ \text{6 is } \frac{2}{3} \text{ of ———.} \\ \text{2 is ——— ——— of 6} \end{cases}$

Teach pupils to "*tell number stories*," both oral and written, similar to those given below. Secure as much variety as possible. Call the numerical statement, the subject of the story, and take care that the narration corresponds to the statement.

NUMBER STORIES.

$$6 + 3 = 9$$

John had 6 cents; his father gave him 3 cents more; he then had — cents.

$$8 - 5 = 3$$

James had 8 apples; he gave away 5 of them; he then had — apples

$$8 - 5 = 3.$$

Jane has 8 dolls; Kate has 5 dolls; Jane has — more dolls than Kate.

PART II.

Teach the following orally. Use objects. Tie 10 counters in a bunch and call the package *1 ten*. Tell the pupil that 10 and 1 are called eleven; 10 and 2, 12, etc. Help him to understand that 11 means 1 ten and 1; 12, 1 ten and 2, etc.

$10 + 1 = 11.$
$10 + 2 = 12.$
$10 + 3 = 13.$
$10 + 4 = 14.$
$10 + 5 = 15.$
$10 + 6 = 16.$
$10 + 7 = 17.$
$10 + 8 = 18.$
$10 + 9 = 19.$

NEW WORDS.

eleven
twelve
thirteen
fourteen
fifteen
sixteen
seventeen
eighteen
nineteen

1. Eleven is ten and —. $11 - 1 =$
2. Fourteen is ten and —. $14 - 4 =$
3. Twelve is ten and —. $12 - 2 =$
4. Fifteen is ten and —. $15 - 5 =$
5. Thirteen is ten and —. $13 - 3 =$
6. Seventeen is ten and —. $17 - 7 =$
7. Sixteen is ten and —. $16 - 6 =$
8. Nineteen is ten and —. $19 - 9 =$
9. Eighteen is ten and —. $18 - 8 =$

FOR DRILL.

(1) Name sums rapidly. (2) Name differences rapidly. (3) Copy and add. (4) Copy and subtract.

10	10	10	10	10	10	10	10
2	5	4	3	6	9	7	8

Teach the following orally. Use objects (toothpicks) tied in bunches of ten.

2 tens = 20.
3 tens = 30.
4 tens = 40.
5 tens = 50.
6 tens = 60.
7 tens = 70.
8 tens = 80.
9 tens = 90.
10 tens = 100.

2 tens and 1 are 21; 2 tens and 2 are 22, etc.

NEW WORDS.

twenty
thirty
forty
fifty
sixty
seventy
eighty
ninety
hundred

1. Twenty is — tens.
2. Thirty is — tens.
3. Forty is — tens.
4. Fifty is — tens.
5. Sixty is — tens.
6. Seventy is — tens.
7. Eighty is — tens.
8. Ninety is — tens.
9. One hundred is — tens.

$20 + 10 =$
$30 + 10 =$
$40 + 10 =$
$50 + 10 =$
$60 + 10 =$
$70 + 10 =$
$80 + 10 =$
$90 + 10 =$

FOR DRILL.

(1) Name sums rapidly. (2) Name differences rapidly. (3) Copy and add. (4) Copy and subtract.

$$\begin{array}{cccccc} 20 & 50 & 70 & 60 & 30 & 90 \\ \underline{10} & \underline{10} & \underline{10} & \underline{10} & \underline{10} & \underline{10} \end{array}$$

Teach the following orally. Use coins.

1 dollar = 100¢.
1 dollar = 10 dimes.
½ dollar = 50¢ = 5 dimes.
¼ dollar = 25¢ = 2 dimes and 5¢.

Pupils will readily understand that the words **cent, dime,** and **dollar,** are used in two senses; viz., as names of coins and as measures of value. Teach the meaning and use of the signs $ and ¢.

NEW WORDS.

dollar   price   it $4   20¢

1. $2 + $3 are —.   5¢ − 2¢ =
2. $8 − $3 are —.   10¢ + 10¢ =

3. The sum of $4 and $6 is — dollars.
4. The difference between 9¢ and 5¢ is —.
5. Four dimes are — cents.   4 tens =
6. The price of a doll is 30¢; I can buy it with — dimes.
7. Two dimes and 3¢ are — cents.
8. The price of a slate is 25¢; I can buy it with 2 dimes and — cents.
9. Four dimes and 5¢ are — cents.
10. The price of a book is half a dollar; I can buy it with — dimes.
11. Three dimes and 2¢ are — cents.

FOR DRILL.

(1) Name sums rapidly. (2) Name differences rapidly. (3) Copy and add. (4) Copy and subtract.

45	25	55	75	35	65
10	10	10	10	10	10
—	—	—	—	—	—

Teach pupils to add 10 to any number from 1 to 90, and to subtract 10 from any number from 100 to 10.

NEW WORDS.

boy knife another tablet

1. 17 and 10 are —. 32 + 10 =
2. 14 and 10 are —. 26 + 10 =
3. 39 less 10 are —. 44 − 10 =
4. 17 less 10 are —. 19 − 10 =

5. A boy had 22¢; his mother gave him one dime; he then had — cents.

6. A girl had 36¢; she spent one dime; she then had — cents.

7. Paid 24¢ for one book and 10¢ for another; both cost — cents.

8. When tablets are 10¢ each, how many can you buy for 30¢? I can buy — tablets for 30¢.

9. When tablets are 10¢ each, how much must you pay for 6 tablets? I must pay — cents for 6 tablets.

10. When tablets are 10¢ each, for a half dollar I can buy — tablets.

FOR DRILL.

(1) Name sums rapidly. (2) Name differences rapidly. (3) Copy and add. (4) Copy and subtract

29	46	34	16	52	67
10	10	10	10	10	10

Teach the following orally. Use objects.

9 + 2 = 11.
8 + 3 = 11.
7 + 4 = 11.
6 + 5 = 11.
11 — 2 = 9.
11 — 3 = 8.
11 — 4 = 7.
11 — 5 = 6.
11 — 6 = 5.
11 — 7 = 4.
11 — 8 = 3.
11 — 9 = 2.

1. Eight and 3 are —. 11 - 6 =
2. Eleven less 4 are —. 4 + 7 =
3. The sum of 6 and 2 is —.
4. The difference between 9 and 2 is —.
5. Two fives are —. 2 fours =
6. Two fives and 1 are —.
7. Eleven is 3 threes and —.
8. Eleven is 2 fives and —.
9. Eleven is 2 fours and —.
10. Six and 5 are —. 11 - 3 =

11. Eleven pints are how many quarts? 11 pints are — quarts and — pint.

12. Eleven quarts are how many gallons? 11 quarts are — gallons and — quarts over.

13. Mary had 11 cents; she bought 5 two-cent stamps; she then had — cent.

14. One half of 10 is —. 10 + 1 =

15. One half of 11 is — — — —.

FOR DRILL.

(1) Name sums rapidly. (2) Name differences rapidly. (3) Copy and add. (4) Copy and subtract.

26	34	35	23	56	47
2	2	2	2	2	2

Teach the following orally. Use objects.

½ of 11 is 5½.   ¼ of 9 is 2¼.
⅓ of 7 is 2⅓.   ⅕ of 11 is 2⅕.

NEW WORDS.

smaller   larger   sheep   horse

1. One half of 10 is —.   ½ of 11 =
2. One fifth of 10 is —.   ⅕ of 11 =
3. One third of 6 is —.   ⅓ of 7 =
4. One fourth of 8 is —.   ¼ of 9 =
5. Eleven and 10 are —.   11 − 10 =
6. One dime and one cent are — cents.
7. Eleven dollars less $1 are — dollars.
8. Two "nickels" and 1¢ are — cents.
9. The sum of two numbers is 11; one of the numbers is 8; the other number is —.
10. The difference between two numbers is 2; the smaller number is 4; the larger number is —.

SUBJECTS FOR NUMBER STORIES.

1. 4 sheep + 6 sheep are 10 sheep.
2. 11 horses − 6 horses are 5 horses.

(1) Name sums rapidly. (2) Name differences rapidly. (3) Copy and add. (4) Copy and subtract.

18	48	28	58	38	68
2	2	2	2	2	2

Teach the following orally. Use objects.

9 + 3 = 12.
8 + 4 = 12.
7 + 5 = 12.
6 + 6 = 12.

12 — 3 = 9.
12 — 4 = 8.
12 — 5 = 7.
12 — 6 = 6.

12 — 7 = 5.
12 — 8 = 4.
12 — 9 = 3.
12 — 10 = 2.

3 fours = 12.
4 threes = 12.
2 sixes = 12.
6 twos = 12.

---

1. Eight and 4 are —. 12 – 5 =
2. Twelve less 3 are —. 6 + 6 =
3. The sum of 7 and 5 is —.
4. The difference between 7 and 5 is —.
5. Two sixes are —. 3 fours =
6. Twelve is — threes. 3 threes =
7. Twelve is — twos. 5 twos =
8. Six pints are — quarts.
9. Six quarts are — pints.
10. Twelve quarts are — gallons.
11. Two gallons are — quarts.
12. George had 12¢; he bought 2 bags of pop-corn at 5¢ each; he then had — cents.
13. The difference between two numbers is 3; the smaller number is 4; the larger number is —.

SUBJECTS FOR NUMBER STORIES.

1. 8 dolls + 4 dolls = 12 dolls.
2. 12 eggs – 9 eggs = 3 eggs.

FOR DRILL.

(1) Name sums rapidly. (2) Name differences rapidly. (3) Copy and add. (4) Copy and subtract.

17	57	27	26	35	46
3	3	3	4	5	4

Teach the following orally. Use objects.

$\frac{1}{2}$ of 12 is 6.	$\frac{2}{3}$ of 12 are 8.	$\frac{2}{4}$ of 12 are 6.
$\frac{1}{3}$ of 12 is 4.	$\frac{1}{4}$ of 12 is 3.	$\frac{3}{4}$ of 12 are 9.

---

1. One third of 12 is ——. $\frac{2}{3}$ of 12 =
2. Four is $\frac{1}{3}$ of ——. 8 is $\frac{}{3}$ of 12.
3. One fourth of 12 is ——. $\frac{3}{4}$ of 12 =
4. Three is $\frac{1}{4}$ of ——. 6 is $\frac{}{4}$ of 12.
5. One half of 12 is ——. 6 is $\frac{1}{2}$ of ——.
6. Four is —— —— of 12.
7. Eight is —— —— of 12.
8. Three is —— —— of 12.
9. Six is —— —— of 12.
10. Nine is of —— —— of 12.
11. One half of 6 ——. $\frac{1}{2}$ of 4 =
12. Six is one half of ——. 4 is $\frac{1}{2}$ of ——.
13. John earned 12¢; he spent one third of the money; he then had —— cents.
14. Two fourths of 12 are how many more than one half of 12?

SUBJECTS FOR NUMBER STORIES.

1. 7 boys + 5 boys = 12 boys.
2. 12 girls − 3 girls = 9 girls.

FOR DRILL.

(1) Name sums rapidly. (2) Name differences rapidly. (3) Copy and add. (4) Copy and subtract.

$$\begin{array}{rrrrrr} 19 & 39 & 29 & 59 & 49 & 69 \\ \underline{2} & \underline{2} & \underline{2} & \underline{3} & \underline{3} & \underline{3} \end{array}$$

Teach the following orally. Use objects.

$\frac{1}{6}$ of 12 is 2.
$\frac{2}{6}$ of 12 are 4.
$\frac{3}{6}$ of 12 are 6.
$\frac{4}{6}$ of 12 are 8.
$\frac{5}{6}$ of 12 are 10.
$\frac{6}{6}$ of 12 are 12.

NEW WORDS AND EXPRESSIONS.

Sixth equals $\frac{1}{6}$ $\frac{2}{6}$ $\frac{3}{6}$ $\frac{4}{6}$ $\frac{5}{6}$, $\frac{6}{6}$

1. One sixth of 12 is —. $\frac{2}{6}$ of 12 =
2. Three sixths of 12 are —. $\frac{4}{6}$ of 12 =
3. Five sixths of 12 are —. $\frac{6}{6}$ of 12 =
4. Two is — — of 12.
5. Six is — sixths of 12.
6. Four is — sixths of 12.
7. Ten is — sixths of 12.
8. Eight is — sixths of 12.
9. I have $12; two thirds of my money equals Henry's money. How many dollars has Henry? Henry has — dollars.
10. Three sixths of 12 are how many more than one half of 12?

SUBJECTS FOR NUMBER STORIES.

1. 5 bananas + 4 bananas = 9 bananas.
2. 12 oranges − 2 oranges = 10 oranges.

FOR DRILL.

(1) Name sums rapidly. (2) Name differences rapidly. (3) Copy and add. (4) Copy and subtract.

43	54	35	67	79	58
20	20	20	20	20	20

Teach the meaning and use of the word times. Tell the pupil that the expression *two times four*, means 2 fours.

FOR DRILL.

Read rapidly (1) by column downwards, (2) by column upwards, (3) by line. Continue this drill until pupils can read the page by line in two minutes.

2 times 1 are —.
2 times 2 are —.
2 times 3 are —.
2 times 4 are —.
2 times 5 are —.
2 times 6 are —.
3 times 1 are —.
3 times 2 are —.
3 times 3 are —.
3 times 4 are —.
4 times 1 are —.
4 times 2 are —.
4 times 3 are —.
5 times 1 are —.
5 times 2 are —.
6 times 1 are —.
6 times 2 are —.

2 sixes are —.
6 twos are —.
3 fours are —.
4 threes are —.
2 fives are —.
5 twos are —.
2 fours are —.
4 twos are —.
2 threes are —.
3 twos are —.
2 twos are —.
3 threes are —.
2 + 2 + 2 =
3 + 3 + 3 =
4 + 4 + 4 =
5 + 5 + 1 =
6 + 6 − 2 =

1. James has 4 apples; Henry has 3 times as many. How many apples has Henry? Henry has — apples.

Teach the following orally. Use the measures.

12 inches = 1 foot. 3 feet = 1 yard.

NEW WORDS.

inch
foot
tall
yard
wide
long
room
high
desk
this
your
teacher

1. One foot is — inches. $\frac{1}{2}$ foot =
2. One yard is — feet. $\frac{1}{2}$ yard =
3. Two yards are — feet. 3 yards =
4. How tall are you? I am — feet — inches tall.
5. How tall is the teacher? The teacher is — feet — inches tall.
6. How wide is your slate? My slate is — inches wide.
7. How long is your slate? My slate is — inches long.
8. How long is this room? This room is — feet long.
9. How wide is this room? This room is — feet wide.
10. How high is this room? This room is — feet high.
11. How high is the teacher's desk? The teacher's desk is — feet — inches high.

Teach the meaning and use of the words **multiply** and **product.** Take care that pupils understand that it is the number that precedes the expression *multiplied by*, that is to be repeated and not the number following it; thus, the expression 6 multiplied by 2, means 2 sixes—not six twos.

NEW WORDS.

multiply multiplied by product

1. Add 3 and 4. The sum of 3 and 4 is—.

2. Subtract 3 from 4. The difference between 3 and 4 is —.

3. Multiply 3 by 4. The product of 3 and 4 is —. 3 multiplied by 4, means 4 threes, or 4 times 3.

4. Five multiplied by 2 means what? 5 multiplied by 2 means — —.

5. Two multiplied by 5 means what? 2 multiplied by 5 means — —.

NAME SUMS RAPIDLY, THEN COPY AND ADD.

22	33	41	54	62	76
5	6	4	3	4	3

NAME DIFFERENCES RAPIDLY, THEN COPY AND SUBTRACT.

36	27	46	58	65	78
4	3	6	2	5	8

NAME PRODUCTS RAPIDLY THEN COPY AND MULTIPLY.

20	22	21	30	31	33
3	3	3	3	3	2

Teach pupils to use the words **plus** and **minus.** For the words *multiplied by* use the sign ×. Train pupils to do both oral and written work like that appearing upon this page. The teacher should give the first part of a numerical statement; as 7 + 5: the pupils should be required (a) to tell the meaning of the expression; (b) to complete the statement; and (c) to tell the suggested number story.

7 + 5 (To be read, 7 plus 5.)

(a) 7 + 5 means, take 7 and 5.

(b) 7 and 5 are 12.

(c) Arthur bought 7 loaves of bread; Henry bought 5 loaves; both bought —— loaves.

12 − 5 (To be read, 12 minus 5.)

(a) 12 − 5 means, take 12 less 5.

(b) 12 less 5 are 7.

(c) Mary had 12¢; she spent 5¢; she then had —— cents.

6 × 2 (To be read, 6 multiplied by 2.)

(a) 6 × 2 means, take 2 sixes.

(b) 2 sixes are 12.

(c) When one orange costs 6¢, 2 oranges cost —— cents.

Teach the meaning and use of the word **dozen**; also that the sign = may be read **equals** or **equal.**

NEW WORDS.

dozen
minus
plus
cake
sponge
Brown
Mrs.
used

1. Six minus 2 equals —. $4 - 2 =$
2. Six plus 2 equals —. $4 + 2 =$
3. Six multiplied by 2 equals —. $4 \times 2 =$
4. One dozen is —. $\frac{1}{2}$ dozen =
5. Mrs. Brown bought one dozen eggs; she used 5 of them to make some sponge cake; she had — eggs left.

NAME SUMS, THEN COPY AND ADD.*

28	48	18	16	36	26
4	4	4	5	5	5

NAME DIFFERENCES, THEN COPY AND SUBTRACT.

19	27	38	45	59	66
8	7	6	5	4	6

---

* NOTE.—To do this and similar work rapidly, without a pencil, the pupil must be led to separate the smaller number into two parts one of which, when added to the larger number, will make another ten; thus, to add 28 and 4 he must think of 4 as 2 twos, and that one of the twos added to 28 makes 30; the other 2 added, makes 32. When the pupil is able to perform such additions readily, he should be required to do the same upon his slate, adding in the usual manner, and observing that the results obtained by the two methods are identical. Both methods should be illustrated with objects (toothpicks) some of which should be tied in bunches of ten.

Teach the following orally. Use objects.

9 + 4 = 13.
8 + 5 = 13.
7 + 6 = 13.

13 — 4 = 9.
13 — 5 = 8.
13 — 6 = 7.

13 — 7 = 6.
13 — 8 = 5.
13 — 9 = 4.

2 sixes + 1 = 13.
2 fives + 3 = 13.
3 fours + 1 = 13.

---

1. Eight and 5 are —. 13 − 4 =
2. Thirteen less 8 are —. 7 + 6 =
3. The sum of 9 and 4 is —.
4. The difference between 9 and 4 is —.
5. The product of 4 and 2 is —.
6. Two sixes are —. 2 fives =
7. Two sixes and 1 are —.
8. Thirteen is 3 fours and —.
9. Thirteen is 2 sixes and —.
10. Thirteen is 2 fives and —.
11. Thirteen is 4 threes and —.

12. Thirteen pints are how many quarts? 13 pints are — quarts and — pint.

13. Thirteen quarts are how many gallons? 13 quarts are — gallons and — quart.

14. Sarah had 13 cents; she bought 6 two-cent stamps; she then had — cent.

15. George had 13 cents; he bought 2 five-cent stamps; he then had — cents.

16. The sum of two numbers is 13; one of the numbers is 8; the other number is —.

17. The difference between two numbers is 3; the smaller number is 4; the larger number is —.

Teach the following orally. Use objects.

½ of 13 is 6½. ⅓ of 13 is 4⅓. ¼ of 13 is 3¼. ⅙ of 13 is 2⅙.

NEW WORDS.

Friday
Saturday
these
gains
knit
sell
stockings
Charlie

1. One half of 12 is —. ½ of 13 =
2. One third of 12 is —. ⅓ of 13 =
3. One fourth of 12 is —. ¼ of 13 =
4. One sixth of 12 is —. ⅙ of 13 =
5. One foot and one inch are — inches.
6. Mrs. Brown had thirteen eggs; she sold one dozen; she then had — egg.
7. Charlie earned 8¢ Friday and 4¢ Saturday; in both days he earned — cents.
8. Mary has knit 13 stockings; these make — pairs and —.
9. Peter pays 3¢ a bag for pop-corn and sells it at 5¢ a bag; on one bag he gains — cents; on 3 bags he gains — cents.

SLATE WORK.

(a) Tell the meaning of the expression. (b) Complete the statement. (c) Tell the suggested number story. (See page 41.)

1. $9 + 4$
2. $9 - 4$
3. 4×3
4. $5 + 2$
5. $5 - 2$
6. 5×2

Teach the following orally. Use objects.

$9 + 5 = 14.$
$8 + 6 = 14.$
$7 + 7 = 14.$
$14 - 5 = 9.$
$14 - 6 = 8.$
$14 - 7 = 7.$
$14 - 8 = 6.$
$14 - 9 = 5.$
$14 - 10 = 4.$
2 sevens = 14.
7 twos = 14, etc.

---

1. Eight plus six = $7 + 7 =$
2. Fourteen minus five = $14 - 7 =$
3. Seven multiplied by two = $5 \times 2 =$
4. The sum of 8 and 5 is —.
5. The difference between 14 and 10 is —.
6. The product of 7 and 2 is —.
7. Fourteen is 2 sixes and —.
8. Fourteen is 2 fives and —.
9. Fourteen is 3 fours and —.
10. Fourteen is 4 threes and —.
11. Fourteen pints are — quarts.
12. Fourteen quarts are how many gallons? 14 quarts are — gallons and — quarts.
13. Samuel had 14¢; he bought 2 five-cent stamps; he then had — cents.
14. Peter pays 2¢ each for oranges and sells them at 4¢ each; on 1 orange he gains — cents; on 5 oranges he gains — cents.
15. The sum of two numbers is 14; one of the numbers is 6; the other number is —.
16. The difference between two numbers is 3; the larger number is 7; the smaller number is —.

Teach the following orally. Use objects.
$\frac{1}{2}$ of 14 is 7. $\frac{1}{7}$ of 14 is 2. $\frac{2}{7}$ of 14 are 4, etc.

NEW WORDS AND EXPRESSIONS.

seventh Eddie $\frac{1}{7}$ $\frac{2}{7}$ $\frac{3}{7}$ $\frac{4}{7}$ $\frac{5}{7}$ $\frac{6}{7}$ $\frac{7}{7}$

1. One seventh of 14 = $\frac{2}{7}$ of 14 =
2. Three sevenths of 14 = $\frac{4}{7}$ of 14 =
3. Five sevenths of 14 = $\frac{6}{7}$ of 14 =
4. Two is —— —— of 14. 2 is $\frac{1}{2}$ of ——.
5. Seven is —— —— of 14. 2 is $\frac{1}{3}$ of ——.
6. Four is —— —— of 14. 2 is $\frac{1}{4}$ of ——.
7. Ten is —— —— of 14. 2 is $\frac{1}{5}$ of ——.
8. Six is —— —— of 14. 2 is $\frac{1}{6}$ of ——.
9. I have $14; two sevenths of my money equals Eddie's money. How many dollars has Eddie? Eddie has —— dollars.

NAME SUMS, THEN COPY AND ADD.*

29	39	59	49	69	19
4	4	4	5	5	5

NAME DIFFERENCES, THEN COPY AND SUBTRACT.

20	30	40	50	60	70
4	4	4	6	6	6

NAME PRODUCTS, THEN COPY AND MULTIPLY.

20	30	40	25	35	45
2	2	2	2	2	2

---

* See Note, page 42.

Teach the number of days in a week and their names.

NEW WORDS.

Sunday
Monday
Tuesday
Wednesday
Thursday
morning
noon
week
to-day
letter
word
will

1. In one week there are — days.
2. In two weeks there are — days.
3. Nine days are 1 week and — days.
4. Twelve days are 1 week and — days.
5. Ten days are 1 week and — days.
6. From Monday noon to the next Wednesday noon is — days.
7. From Tuesday noon to the next Thursday noon is — days.
8. From Sunday morning to the next Sunday morning is — days.
9. In the word WEDNESDAY there are — letters.
10. To-day is —. One week from to-day will be —. Seven days from to-day will be —. Eight days from to-day will be -. Nine days from to-day will be —. Two weeks from to-day will be —. Fourteen days from to-day will be —. Thirteen days from to-day will be —.

Teach the following orally. Use objects.

9 + 6 = 15. 15 — 6 = 9. 15 — 8 = 7. 3 fives = 15.
8 + 7 = 15. 15 — 7 = 8. 15 — 9 = 6. 5 threes = 15.
2 sixes and 3 are 15. 2 sevens and 1 are 15, etc.

1. Nine plus six = 8 + 7 =
2. Fifteen minus eight = 15 − 7 =
3. Five multiplied by three = 4 × 3 =
4. Fifteen is —— threes. 5 + 5 + 5 =
5. Fifteen is 2 sixes and ——.
6. Fifteen is 2 sevens and ——.
7. Fifteen is 3 fours and ——.
8. Fifteen is 4 threes and ——.
9. Fifteen feet are —— yards.
10. Fifteen days are 2 weeks and —— day.
11. Fifteen cents are 1 dime and —— cents.
12. Fifteen pints are 7 quarts and —— ——.
13. Fifteen quarts are 3 gallons and —— ——.
14. Fifteen inches are 1 foot and —— ——.
15. Mrs. Brown had 15 eggs; she sold 1 dozen; she then had —— eggs.
16. Peter pays 10¢ a dozen for eggs and sells them for 15¢ a dozen; on one dozen he gains —— cents; on two dozen he gains —— cents.

SLATE WORK.

See pages 41 and 44.

9 + 6 9 − 6 5 × 3

Teach the following orally. Use objects.

$\frac{1}{3}$ of 15 is 5. $\frac{2}{3}$ of 15 are 10. $\frac{3}{3}$ of 15 are 15.
$\frac{1}{5}$ of 15 is 3. $\frac{2}{5}$ of 15 are 6, etc.

1. One fifth of 15 is —. $\frac{3}{5}$ of 15 =
2. Three fifths of 15 are —. $\frac{4}{5}$ of 15 =
3. One third of 15 is —. $\frac{2}{3}$ of 15 =
4. Three is — — of 15. 3 is $\frac{1}{2}$ of —.
5. Five is — — of 15. 3 is $\frac{1}{3}$ of —.
6. Six is — — of 15. 3 is $\frac{1}{4}$ of —.
7. Nine is — — of 15. 3 is $\frac{1}{5}$ of —.
8. Six is two fifths of —. 4 is $\frac{1}{2}$ of —.
9. Six is two fourths of —. 4 is $\frac{1}{3}$ of —.
10. Six is two thirds of —. 4 is $\frac{2}{3}$ of —.

NAME DIFFERENCES, THEN COPY AND SUBTRACT.*

21	31	41	51	61	71
5	5	5	6	6	6

NAME PRODUCTS, THEN COPY AND MULTIPLY.

20	34	42	32	42	42
4	2	2	3	2	4

---

* NOTE.—To do this and similar work rapidly, without a pencil, the pupil must be led to separate the subtrahend into two parts, one of which is equal to the number denoted by the right hand figure of the minuend; thus, to subtract 5 from 21 he must think the 5 as 1 and 4, and that 1 from 21 leaves 20, and 4 from 20, 16. When the pupil is able to perform such subtractions readily, he should be required to do the same upon his slate, subtracting in the usual manner and observing that the results obtained by the two methods are identical.

Teach the meaning and use of the expression **is contained in.**

NOTE.—The writer is aware that some excellent and progressive teachers object to the use of this expression in stating the facts of division. But as no series of arithmetics, so far as the writer can learn, has yet been published in which this expression does not occur many times, and since one object in the preparation of this little book is to acquaint the pupil with the language of the higher text books, it is thought best to insert it here. Moreover, the author finds it *a very convenient expression.*

NEW WORDS.

contained	cradle	enough	put

1. Two is contained in six —— times.
2. Three is contained in twelve —— times.
3. Four is contained in eight —— times.
4. Five is contained in fifteen —— times.
5. Six is contained in twelve —— times.
6. Two is contained in fourteen —— times.
7. Seven is contained in fourteen —— times.
8. Three is contained in fifteen —— times.
9. Jane has 6 dolls; she has cradles enough to put them in when she puts 2 dolls in each cradle; she has —— cradles.
10. Peter pays 8¢ a dozen for apples and sells them for one cent each; on one dozen he gains —— cents; on two dozen he gains —— cents.

SLATE WORK.

See pages 41 and 44.

$7 + 2$ $7 - 2$ 7×2

Teach *one* meaning and use of the words **divide, divided by,** and **quotient;** also that the sign ÷ may be used for the words *divided by*. Tell the pupil that the expression 8¢ ÷ 2¢ means, find how many times 2¢ are contained in 8¢.

Train pupils to do both oral and written work like that appearing upon this page. The teacher should give the first part of a numerical statement; as, 10 *birds* ÷ 2 *birds*. The pupil should be required (a) to tell the meaning of the expression; (b) to complete the statement; and (c) to tell the suggested number story.

NEW WORDS.

divide
bird
Eva
cage
divided
quotient

1. 10 birds ÷ 2 birds.

(a) Ten birds divided by 2 birds, means, find how many times 2 birds are contained in 10 birds.

(b) Two birds are contained in 10 birds —— times.

(c) Eva has 10 birds; she has cages enough to put them in when she puts 2 birds in each cage. How many cages has she? She has —— cages.

2. 12 birds ÷ 3 birds.
3. 6 dolls ÷ 2 dolls.
4. The quotient of 8 divided by 4 is ——.
5. The quotient of 10 divided by 2 is ——.
6. The quotient of 12 divided by 4 is ——.

REVIEW.

1. 6 + 2. 6 + 2 means, take 6 and 2.
2. 6 − 2. 6 − 2 means, take 6 less 2.
3. 6 × 2. 6 × 2 means, take 6 two times.
4. 6¢ ÷ 2¢. 6¢ ÷ 2¢ means, find how many times 2¢ are contained in 6¢.

5. 5 + 3. The sum of 5 and 3 is —.
6. 5 − 3. The difference between 5 and 3 is —.
7. 5 × 3. The product of 5 and 3 is —.
8. 8 ÷ 4. The quotient of 8 divided by 4 is —.

9. Add 5 and 3. 5 + 3 =
10. Subtract 3 from 5. 5 − 3 =
11. Multiply 5 by 3. 5 × 3 =
12. Divide 8 by 4. 8 ÷ 4 =

NAME SUMS.

$$\begin{array}{r}4\\8\\\hline\end{array}\quad\begin{array}{r}9\\6\\\hline\end{array}\quad\begin{array}{r}7\\5\\\hline\end{array}\quad\begin{array}{r}4\\3\\\hline\end{array}$$

NAME DIFFERENCES.

$$\begin{array}{r}12\\8\\\hline\end{array}\quad\begin{array}{r}9\\4\\\hline\end{array}\quad\begin{array}{r}6\\2\\\hline\end{array}\quad\begin{array}{r}10\\7\\\hline\end{array}$$

NAME PRODUCTS.

$$\begin{array}{r}5\\2\\\hline\end{array}\quad\begin{array}{r}6\\2\\\hline\end{array}\quad\begin{array}{r}4\\3\\\hline\end{array}\quad\begin{array}{r}2\\7\\\hline\end{array}$$

NAME QUOTIENTS.

$$3\overline{)\underline{12}}\quad 5\overline{)\underline{15}}\quad 2\overline{)\underline{14}}$$

Teach the following orally. Use objects.

9 + 7 = 16. 16 — 7 = 9. 16 — 9 = 7. 4 fours = 16.
8 + 8 = 16. 16 — 8 = 8. 2 eights = 16. 8 twos = 16.
2 sevens and 2 are 16; 3 fives and 1 are 16, etc.

1. Nine and 7 are ——. 16 − 8 =
2. Sixteen less 9 are ——. 8 + 8 =
3. Four 4's are ——. 8 × 2 =
4. Sixteen is —— eights. 16 ÷ 8 =

5. 8 + 2. 8 + 2 means, take 8 and 2.
6. 8 − 2. 8 − 2 means, take 8 less 2.
7. 8 × 2. 8 × 2 means, take 8 two times.
8. 8¢ ÷ 2¢. 8¢ ÷ 2¢ means, find how many times 2¢ are contained in 8¢.

9. The sum of 8 and 2 is ——.
10. The difference between 8 and 2 is ——.
11. The product of 8 and 2 is ——.
12. The quotient of 8 divided by 2 is ——.

13. Add 7 and 9. 7 + 9 =
14. Subtract 5 from 16. 16 − 5 =
15. Multiply 2 by 8. 2 × 8 =
16. Divide 16 by 4. 16 ÷ 4 =

SLATE WORK.

(a) Tell the meaning of the expression. (b) Complete the statement. (c) Tell the suggested number story. See pp. 41 and 51.

7 apples + 9 apples. 8 apples × 2.
16 apples − 9 apples. 16 apples ÷ 4 apples.

Teach the following orally. Use the measures.
8 quarts = 1 peck. 4 pecks = 1 bushel.

NEW WORDS.

peck bushel oats

1. Sixteen is — twos. 7 twos =
2. Sixteen is — fours. 3 fours =
3. Sixteen is 3 fives and —.
4. Sixteen is 2 sevens and —.
5. Sixteen is 2 sixes and —.
6. Sixteen is 1 dozen and —.
7. Sixteen pints are — quarts.
8. Sixteen quarts are — gallons.
9. Sixteen days are 2 weeks and — days.
10. Sixteen cents are 1 dime and — cents.
11. Sixteen dimes are 1 dollar and — dimes.
12. Sixteen feet are 5 yards and — foot.
13. Sixteen inches are 1 foot and — inches.
14. One peck is — quarts.
15. Two pecks are — quarts.
16. One bushel is — pecks.
17. Two bushels are — pecks.
18. Three bushels are — pecks.
19. Sixteen quarts are — pecks.
20. My horse eats a peck of oats each day; in one week he eats 1 bushel and — pecks.

NEW WORDS.

gathered nuts Vernie

1. At 4 cents a quart, 3 quarts of milk cost —— cents; 4 quarts cost —— cents.

2. Vernie gathered 2 pecks of nuts; she sold 10 quarts; she then had —— quarts.

3. Eight 2-cent stamps cost —— cents.

4. Poor old Tom had 16 cents; he bought a seven-cent loaf of bread; he then had —— cents.

5. The sum of two numbers is 16; one of the numbers is 11; the other number is ——.

6. The difference between two numbers is 5; the smaller number is 10; the larger number is ——.

7. The difference between two numbers is 6; the larger number is 16; the smaller number is ——.

NAME SUMS, THEN COPY AND ADD.*

29	39	49	39	49	59
7	7	7	6	6	6

NAME DIFFERENCES, THEN COPY AND SUBTRACT.†

21	31	41	51	61	71
7	7	7	8	8	8

---

*See note, page 42. † See note, page 49.

Teach the following orally. Use objects.

$\frac{1}{4}$ of 16 is 4. $\frac{2}{4}$ of 16 are 8. $\frac{3}{4}$ of 16 are 12.
$\frac{1}{8}$ of 16 is 2. $\frac{2}{8}$ of 16 are 4, etc.

NEW WORDS.

eighth Frank Fred

1. One eighth of 16 is ——. $\frac{2}{8}$ of 16 =
2. Three eighths of 16 are ——. $\frac{4}{8}$ of 16 =
3. Five eighths of 16 are ——. $\frac{6}{8}$ of 16 =
4. Two is —— —— of 16. 5 is $\frac{1}{2}$ of ——.
5. Four is —— —— of 16. 5 is $\frac{1}{3}$ of ——.
6. Six is —— —— of 16. 6 is $\frac{1}{2}$ of ——.
7. Eight is —— —— of 16. 7 is $\frac{1}{2}$ of ——.
8. Ten is five sixths of ——. 10 is $\frac{2}{3}$ of ——.
9. Six is three eighths of ——. 6 is $\frac{2}{3}$ of ——.
10. Frank has $16; seven eighths of Frank's money is equal to Fred's money; Fred has —— dollars.

NAME PRODUCTS, THEN COPY AND MULTIPLY.*

26	36	46	27	37	47
2	2	2	2	2	2

---

*NOTE.—To do this and similar work without a pencil, the pupil should first find the larger partial product; then the smaller, then their sum; thus, to multiply 26 by 2, he should first multiply 20 by 2; then 6 by 2; then unite the partial products thus obtained. When the pupil is able to perform such multiplications readily, he should be required to do the same upon the slate, multiplying in the usual manner and observing that the results obtained by the two methods are identical.

Teach the following orally. Use objects.

9 + 8 = 17. 17 — 8 = 9. 17 — 9 = 8.

---

1. Nine and 8 are —. 17 − 8 =
2. Seventeen less 9 are —. 8 + 9 =
3. Seventeen is 2 eights and —.
4. Seventeen is 3 fives and —.
5. Seventeen is 4 fours and —.
6. Seventeen is 2 sevens and —.
7. Seventeen is 2 sixes and —.
8. Seventeen is 5 threes and —.
9. 17 pints are 8 quarts and — pint.
10. 17 quarts are 4 gallons and — quart.
11. 17 days are 2 weeks and — days.
12. 17 cents are 1 dime and — cents.
13. 17 dimes are 1 dollar and — dimes.
14. 17 feet are 5 yards and — feet.
15. 17 inches are 1 foot and — inches.
16. 17 pecks are 4 bushels and — peck.
17. 17 quarts are 2 pecks and — quart.
18. My horse eats a peck of oats each day; in 10 days he eats 2 bushels and — pecks.

SLATE WORK.

(See page 51.

12 quarts ÷ 3 quarts. 15 inches ÷ 5 inches.

1. Henry earned 8¢ Monday and 9¢ Tuesday; in both days he earned — cents.

2. Sarah has knit 17 stockings; these make — pairs and —.

3. Peter pays 3¢ each for papers and sells them at 5¢ each; on one paper he gains — cents; on 8 papers he gains — cents.

4. To-day is Monday. Fourteen days from to-day will be —. Fifteen days from to-day will be —. Seventeen days from to-day will be —.

5. The sum of two numbers is 17; one of the numbers is 10; the other number is —.

6. The difference between two numbers is 9; the smaller number is 8; the other number is —.

READ AND COMPLETE, THEN COPY AND COMPLETE.

17 + 10 =
24 + 10 =
36 + 10 =
45 + 10 =
11 + 10 =
16 + 10 =
76 + 10 =
44 + 10 =

48 − 10 =
37 − 10 =
57 − 10 =
63 − 10 =
42 − 10 =
31 − 10 =
27 − 10 =
17 − 10 =

10 × 2 =
10 × 5 =
10 × 3 =
10 × 6 =
10 × 4 =
10 × 8 =
10 × 9 =
10 × 7 =

Teach the following orally. Use objects.

½ of 15 = 7½. **½ of 17 = 8½.** **¼ of 17 = 4¼.**

NEW WORDS.

number between marbles

1. One half of 14 is —. ½ of 15 =
2. One half of 16 is —. ½ of 17 =
3. One-fourth of 16 is —. ¼ of 17 =
4. One foot and 5 inches are — inches.
5. One peck and 2 quarts are — quarts.
6. One gallon and 2 quarts are — quarts.
7. One quart and 1 pint are — pints
8. One yard and 2 feet are — feet.
9. One "nickel" and 2 cents are — cents.
10. One dime and 7 cents are — cents.
11. One bushel and 1 peck are — pecks.
12. If a number of apples are divided equally between 2 boys each boy receives one half of them.
13. If a number of apples are divided equally among 3 boys each boy receives —— of them.
14. If a number of marbles are divided equally among 4 boys each boy receives —— of them.
15. One fourth of 16 marbles is — marbles.

Teach the following orally. Use objects.

9 + 9 = 18. 18 — 9 = 9. 2 nines = 18.
9 twos = 18. 3 sixes = 18. 6 threes = 18.

1. Nine and 9 are ——. 18 − 10 =
2. Eighteen is —— nines. 18 ÷ 9 =
3. Eighteen is —— twos. 18 ÷ 2 =
4. Eighteen is —— sixes. 18 ÷ 6 =
5. Eighteen is —— threes. 18 ÷ 3 =
6. Eighteen is 4 fours and ——.
7. Eighteen is 3 fives and ——.
8. Eighteen is 2 sevens and ——.
9. Eighteen is 2 eights and ——.
10. Eighteen is 1 dozen and ——.
11. Eighteen pints are —— quarts.
12. Eighteen feet are —— yards.
13. 18 quarts are 4 gallons and —— quarts.
14. 18 days are 2 weeks and —— days.
15. 18 cents are 1 dime and —— cents.
16. 18 dimes are 1 dollar and —— dimes.
17. 18 inches are 1 foot and —— inches.
18. 18 pecks are 4 bushels and —— pecks.

SLATE WORK.

(a) Tell the meaning of the expression. (b) Complete the statement. (c) Tell the suggested number story.

11 hats + 7 hats. 9 hats × 2.
18 hats − 9 hats. 18 hats ÷ 3 hats.

NEW WORDS.

spider fly legs

1. At 6¢ a quart, 2 quarts of milk cost — cents; 3 quarts cost — cents.

2. A fly has — legs; 2 flies have — legs; 3 flies have — legs.

3. A spider has — legs; 2 spiders have — legs.

4. When oranges cost 3¢ each, how many can you buy for 18¢? I can buy — for 18 cents.

5. Peter had 18¢; he bought 5 two-cent stamps; he then had — cents.

6. The difference between 18 and 12 is —.

7. The sum of 11 and 4 is —.

8. The product of 3 and 6 is —.

9. The quotient of 18 divided by 6 is —.

10. The difference between two numbers is 5; the larger number is 18; the smaller number is —.

SLATE WORK.

(See page 51.)

18 feet ÷ 6 feet. 15 cents ÷ 3 cents.

Teach the following orally. Use objects.

$\frac{1}{3}$ of 18 = 6. $\frac{2}{3}$ of 18 = 12.
$\frac{1}{6}$ of 18 = 3. $\frac{2}{6}$ of 18 = 6.
$\frac{1}{9}$ of 18 = 2. $\frac{2}{9}$ of 18 = 4.

NEW WORDS.

ninth Martha Dick

1. One ninth of 18 is —. $\frac{2}{9}$ of 18 =
2. Three ninths of 18 are —. $\frac{4}{9}$ of 18 =
3. Five ninths of 18 are —. $\frac{6}{9}$ of 18 =
4. Seven ninths of 18 are —. $\frac{8}{9}$ of 18 =
5. One sixth of 18 is —. $\frac{2}{6}$ of 18 =
6. Three sixths of 18 are —. $\frac{4}{6}$ of 18 =
7. Five sixths of 18 are —. $\frac{6}{6}$ of 18 =
8. One third of 18 is —. $\frac{2}{3}$ of 18 =
9. Six is — — of 18. 2 is $\frac{1}{4}$ of —.
10. Twelve is — — of 18. 2 is $\frac{1}{5}$ of —.
11. Four is $\frac{2}{7}$ of —. 4 is $\frac{2}{9}$ of —.
12. Four is $\frac{2}{5}$ of —. 4 is $\frac{2}{3}$ of —.
13. Martha had 18¢; she spent one third of her money; she then had — cents.
14. Dick had $18; he spent one ninth of his money; he then had — dollars.

12¢ ÷ 3¢. 3¢ are contained in 12¢ — times.
15¢ ÷ 3¢. 3¢ are contained in 15¢ — times.
18¢ ÷ 3¢. 3¢ are contained in 18¢ — times.

1. One half of a foot is — inches.
2. One half of a bushel is — pecks.
3. One half of a gallon is — quarts.
4. One half of a peck is — quarts.
5. One half of a dime is — cents.
6. One half of a quart is — pint.
7. One half of a week is — days.
8. One half of a yard is — feet.
9. Frank pays 3¢ each for oranges and sells them at 5¢ each; on one orange he gains — cents; on nine oranges he gains — cents.
10. Fred gathered 18 quarts of nuts; he sold one peck; he then had — quarts.
11. My horse eats a peck of oats each day; in 18 days he eats — bushels and — pecks.

NAME SUMS, THEN COPY AND ADD.*

18	28	38	48	58	8
6	6	6	5	5	5

NAME DIFFERENCES, THEN COPY AND SUBTRACT.†

22	32	42	52	62	72
7	7	7	6	6	6

---

* See note, page 42.

† See note, page 49.

1. One fourth of a dozen is —.
2. One fourth of a foot is — inches.
3. One fourth of a bushel is — peck.
4. One fourth of a peck is — quarts.
5. One fourth of a gallon is — quart.
6. One fourth of a quart is — — of a pint.
7. James has $18; two ninths of James's money equals Eddie's money. How many dollars has Eddie? Eddie has — dollars.
8. Charlie earned 9¢ Monday and 9¢ Tuesday; in both days he earned — cents.
9. A cat has 4 toes on each hind foot and 5 toes on each fore foot; on both hind feet she has — toes; on both fore feet she has — toes; in all she has — toes.

NAME SUMS, THEN COPY AND ADD.*

17	27	37	47	57	67
6	6	6	8	8	8

NAME DIFFERENCES, THEN COPY AND SUBTRACT.†

16	26	36	46	56	66
8	8	8	9	9	9

NAME PRODUCTS, THEN COPY AND MULTIPLY.‡

29	39	49	22	32	24
2	2	2	3	3	3

* See note, page 42. † See note, page 49. ‡ See note, page 56.

Review page 23; then require pupils to read the following rapidly, giving sums only. Read as directed on page 23. Continue this drill until every pupil can give these twenty sums, in any order, ***in thirty seconds or less.***

FOR DRILL.

6 5	8 8	7 5	8 6	9 9
8 7	8 3	8 5	7 7	7 4
6 6	9 8	8 4	9 5	9 3
9 2	9 6	9 4	7 9	6 7

---

1. One fourth of $16 is —— ——.
$4 are contained in $16 —— ——.

2. One fifth of $15 is —— ——.
$5 are contained in $15 —— ——.

3. One sixth of $18 is —— ——.
$6 are contained in $18 —— ——.

1. Nineteen less 10 is —. 9 + 10 =
2. Nineteen less 9 is —. 2 nines =
3. Nineteen is 2 nines and —.
4. Nineteen is 3 sixes and —.
5. Nineteen is 2 eights and —.
6. Nineteen is 4 fours and —.
7. Nineteen is 3 fives and —.
8. Nineteen is 6 threes and —.
9. Nineteen is 9 twos and —.
10. Nineteen is 2 sevens and —.
11. 19 pints are 9 quarts and — pint.
12. 19 quarts are 4 gallons and — quarts.
13. 19 days are 2 weeks and — days.
14. 19 cents are 1 dime and — cents.
15. 19 dimes are 1 dollar and — dimes.
16. 19 feet are 6 yards and — foot.
17. 19 inches are 1 foot and — inches.
18. 19 pecks are 4 bushels and — pecks.
19. 19 quarts are 2 pecks and — quarts.

20. The quotient of 18 divided by 6 is —.
21. The quotient of 15 divided by 3 is —.
22. The quotient of 10 divided by 5 is —.
23. The quotient of 12 divided by 4 is —.
24. The product of 4 and 3 is —.

See page 51. Teach *another* meaning and use of the words **divide, divided by,** and **quotient.** Tell the pupil that the expression 8¢ ÷ 2 means, find one half of 8¢. The work on this page must be reviewed and supplemented until the pupil clearly perceives the difference between "*finding how many times one number is contained in another*" and "*finding one of the equal parts into which a number is divided,*" and until he can easily give problems illustrating each of these cases. Review pages 41 and 51.

1. 12 cents ÷ 3 cents.

(a) 12¢ divided by 3¢, means, find how many times 3¢ are contained in 12¢.

(b) 3¢ are contained in 12¢ —— times.

(c) When oranges cost 3¢ each, with 12¢ I can buy —— oranges.

2. 12 cents ÷ 3.

(a) 12¢ divided by 3, means, find one third of 12¢.

(b) One third of 12¢ is —— cents.

(c) Mrs. Brown divided 12¢ equally among 3 girls; each girl received —— cents.

---

3. { 12 dolls ÷ 3 dolls, means —— —— ——
12 dolls ÷ 3, means —— —— —— ——

4. { 15 pints ÷ 5 pints, means —— —— ——
15 pints ÷ 5, means —— —— —— ——

Teach the following orally. Use objects.

4 fives = 20. 5 fours = 20. 10 twos = 20.

1. Twenty is —— fours. 4 fours =
2. Twenty is —— fives. 3 fives =
3. Twenty is —— tens. 3 tens =
4. Twenty is two nines and ——.
5. Twenty is two eights and ——.
6. Twenty is two sevens and ——.
7. Twenty is three sixes and ——.
8. Twenty is six threes and ——.
9. Twenty pints are —— quarts.
10. Twenty quarts are —— gallons.
11. Twenty cents are —— dimes.
12. Twenty dimes are —— dollars.
13. Twenty pecks are —— bushels.
14. 20 days are 2 weeks and —— days.
15. 20 feet are 6 yards and —— feet.
16. 20 inches are 1 foot and —— inches.
17. 20 quarts are 2 pecks and —— quarts.

SLATE WORK.

(See page 67.)

(a) Tell the meaning of the expression. (b) Complete the statement. (c) Tell the suggested number story.

15 cents ÷ 3 cents. 15 cents ÷ 3.

Review page 38.

FOR DRILL.

Read rapidly (1) by column downwards, (2) by column upwards, and (3) by line. Continue this drill until pupils can read the page by line in 2 minutes or less.

2 times 7 are —.
2 times 8 are —.
2 times 9 are —.
2 times 10 are —.
3 times 5 are —.
3 times 6 are —.
4 times 4 are —.
4 times 5 are —.
5 times 3 are —.
5 times 4 are —.
6 times 3 are —.
7 times 2 are —.
8 times 2 are —.
9 times 2 are —.
10 times 2 are —.

2 tens are —.
10 twos are —.
4 fives are —.
5 fours are —.
2 nines are —.
9 twos are —.
3 sixes are —.
6 threes are —.
3 fives are —.
5 threes are —.
2 eights are —.
8 twos are —.
2 sevens are —.
7 twos are —.
4 fours are —.

1. William has 4 oranges; Arthur has 5 times as many. How many oranges has Arthur? Arthur has — oranges.

2. Three times five feet are — feet.

3. Six times three cents are — cents.

NEW WORDS.

get
set
lay
nest
change
except
worth
should
chickens
hatched

1. At 5¢ a quart one gallon of milk costs —— cents; 3 quarts cost —— cents.

2. If Eddie's hens lay 2 eggs a day, in one week he gets —— eggs.

3. How many five-cent pencils can you buy with 2 dimes? I can buy —— five-cent pencils with two dimes.

4. Sarah set her old hen on a nest of 13 eggs; all the eggs hatched except 2; there were —— chickens.

5. When oranges cost 4¢ each, how many can you buy for 2 dimes? I can buy —— for 2 dimes.

6. Mary was sent to the baker's with 2 dimes; she bought 15¢ worth of bread. How much change should she receive?

SLATE WORK.

(See page 67.)

(a) Tell the meaning of the expression. (b) Complete the statement. (c) Tell the suggested number story.

16 cents ÷ 4 cents.   16 cents ÷ 4.

Review page 23; then require pupils to read the following rapidly, giving sums only. It will be observed that the pupil who has mastered the work on page 23, will be able to give these sums readily without memorizing them; thus, if he remembers the fact that 2 and 4 are 6 he will quickly perceive that 12 and 4 are 16. Continue this drill until every pupil can give these thirty sums, in any order, in *fifty seconds or less.*

FOR DRILL.

10	12	11	15	14
1	1	1	1	1
16	18	17	19	13
1	1	1	1	1
15	11	13	18	16
2	2	2	2	2
12	17	14	10	11
2	2	2	2	3
14	12	10	16	13
3	3	3	3	3
15	17	12	11	10
3	3	4	4	4

Teach the following orally. Use objects.

$\frac{1}{2}$ of 19 = $9\frac{1}{2}$. $\frac{1}{4}$ of 20 = 5. $\frac{1}{5}$ of 20 = 4.

1. One fourth of 20 is —. $\frac{3}{4}$ of 20 =
2. Four is $\frac{1}{5}$ of —. 8 is $\frac{2}{5}$ of 20.
3. One half of 10 is —. 10 is $\frac{1}{2}$ of —.
4. Five is — — of 20.
5. Ten is — — of 20.
6. Fifteen is — — of 20.
7. Four is — — of 20.
8. Eight is — — of 20.
9. Twelve is — — of 20.
10. Sixteen is — — of 20.
11. Henry earned 20¢; he spent one fourth of his money; he then had — cents.
12. George earned 20¢; he spent three fourths of his money; he then had — cents.
13. The sum of two numbers is 20; one of the numbers is 18; the other number is —.
14. The difference between 20 and 17 is —.
15. The product of 4 and 5 is —.

SLATE WORK.

(See page 67.)

(a) Tell the meaning of the expression. (b) Complete the statement. (c) Tell the suggested number story.

20 cents ÷ 5 cents. 20 cents ÷ 5.

Review pages 23 and 71. Continue this drill until every pupil can give these twenty-five sums, in any order, *in forty seconds or less.*

FOR DRILL.

13	16	14	15	15
4	4	4	4	5
10	13	11	14	12
5	5	5	5	5
11	14	12	10	13
6	6	6	6	6
12	10	13	11	10
7	7	7	7	8
12	11	10	11	10
8	8	10	9	9

NAME PRODUCTS, THEN COPY AND MULTIPLY.*

25	26	27	28	29	30
2	2	2	2	2	2

---

* See Note, page 56.

Teach the following orally. Use objects.

3 sevens = 21. **7 threes = 21.** **2 elevens = 22.**

1. Twenty-one is —— sevens. 2 sevens =
2. Twenty-one is —— threes. 6 threes =
3. Twenty-one is 2 tens and ——.
4. Twenty-two is 2 tens and ——.
5. Twenty-three is 2 tens and ——.
6. Twenty-one is 2 nines and ——.
7. Twenty-two is 3 sixes and ——.
8. Twenty-three is 4 fives and ——.
9. Twenty-one feet are —— yards.
10. Twenty-one days are —— weeks.
11. 22 days are 3 weeks and —— day.
12. 23 days are 3 weeks and —— days.
13. 21 pints are 10 quarts and —— pint.
14. 21 quarts are 5 gallons and —— quart.
15. 22 quarts are 5 gallons and —— quarts.
16. 23 quarts are 5 gallons and —— quarts.
17. 21 pecks are 5 bushels and —— peck.
18. 22 pecks are 5 bushels and —— pecks.
19. 23 pecks are 5 bushels and —— pecks.
20. 21 quarts are 2 pecks and —— quarts.
21. 21 dimes are 2 dollars and —— dime.
22. 22 dimes are 2 dollars and —— dimes.
23. 21 cents are 2 dimes and —— cent.
24. 23 cents are 2 dimes and —— cents.
25. 21 inches are 1 foot and —— inches.

1. One third of 18 is ——. $\frac{1}{3}$ of 21 =
2. Two thirds of 18 are ——. $\frac{2}{3}$ of 21 =
3. One seventh of 14 is ——. $\frac{1}{7}$ of 21 =
4. Two sevenths of 14 are ——. $\frac{2}{7}$ of 21 =
5. Five is one third of ——. 7 is $\frac{1}{3}$ of ——.
6. Ten is two thirds of ——. 14 is $\frac{2}{3}$ of ——.

7. Mary had 21¢; she spent one third of her money; she then had —— cents.

8. Henry paid 21¢ for a book and one third as many cents for a pencil. How much did the pencil cost? The pencil cost —— cents. How much did the book and the pencil both cost? Both cost —— cents. How many cents did the book cost more than the pencil? The book cost —— cents more than the pencil.

9. Seven is what part of 21? Seven is —— —— of twenty-one.

10. Fourteen is what part of 21? Fourteen is —— —— of 21.

11. When peaches cost 3¢ each, how many can you buy for 21¢? I can buy —— peaches for 21¢.

12. Kate had 21¢; she paid two thirds of her money for a slate; she then had —— cents.

Teach the following orally. Use objects.

3 eights = 24. **8 threes = 24.**
4 sixes = 24. **6 fours = 24.**
2 twelves = 24.

1. Twenty-four is —— eights. 2 eights =
2. Twenty-four is —— threes. 7 threes =
3. Twenty-four is —— sixes. 3 sixes =
4. Twenty-four is —— fours. 5 fours =
5. Twenty-four is —— twelves. 1 dozen =
6. Twenty-four is 2 tens and ——.
7. Twenty-four is 3 sevens and ——.
8. Twenty-four is 2 nines and ——.
9. Twenty-four is 4 fives and ——.
10. Twenty-four inches are —— feet.
11. Twenty-four feet are —— yards.
12. Twenty-four eggs are —— dozen eggs.
13. Twenty-four pecks are —— bushels.
14. Twenty-four quarts are —— gallons.
15. Twenty-four quarts are —— pecks.
16. 24 days are 3 weeks and —— days.
17. 24 dimes are 2 dollars and —— dimes.
18. 24 cents are 2 dimes and —— cents.
19. The sum of 12 and 2 is ——.
20. The difference between 12 and 2 is ——.
21. The product of 12 and 2 is ——.
22. The quotient of 12 divided by 2 is ——.

SLATE WORK.

(See page 67.)

24 cents ÷ 6 cents. 24 cents ÷ 6.

1. One third of 21 is —. $\frac{1}{3}$ of 24 =
2. Two thirds of 21 are —. $\frac{2}{3}$ of 24 =
3. One fourth of 20 is —. $\frac{1}{4}$ of 24 =
4. Two fourths of 20 are —. $\frac{2}{4}$ of 24 =
5. One sixth of 18 is —. $\frac{1}{6}$ of 24 =
6. Two sixths of 18 are —. $\frac{2}{6}$ of 24 =
7. One eighth of 16 is —. $\frac{1}{8}$ of 24 =
8. Two eighths of 16 are —. $\frac{2}{8}$ of 24 =
9. Four is one third of —. 8 is $\frac{1}{3}$ of —.
10. Eight is two thirds of —. 16 is $\frac{2}{3}$ of —.
11. The sum of two numbers is 24; one of the numbers is 20; the other number is —.
12. The difference between two numbers is 4; the larger number is 20; the smaller number is —.
13. The difference between two numbers is 4; the smaller number is 20; the larger number is —.
14. I have $24; two thirds of my money equals John's. How many dollars has John? John has — dollars.

SLATE WORK.

(See page 41.)

$6 + 4.$ $6 - 4.$ $6 \times 4.$

Teach the following orally. Use objects.

5 fives = 25.

1. Twenty-five is —— fives. 4 fives =
2. Twenty-five is 2 tens and ——.
3. Twenty-five is 3 eights and ——.
4. Twenty-five is 3 sevens and ——.
5. Twenty-five is 4 sixes and ——.
6. Twenty-five is 2 nines and ——.
7. 25 inches are 2 feet and —— inch.
8. 25 days are 3 weeks and —— days.
9. 25 feet are 8 yards and —— foot.
10. 25 eggs are 2 dozen and —— eggs.
11. 25 pecks are 6 bushels and —— peck.
12. 25 quarts are 3 pecks and —— quart.
13. 25 dimes are 2 dollars and —— dimes.
14. 25 cents are 2 dimes and —— cents.
15. 25 quarts are 6 gallons and —— quart.
16. One foot and 2 inches are —— inches.
17. Two feet and 2 inches are —— inches.
18. One dozen and 3 eggs are —— eggs.
19. Peter earned 5¢ a day for 5 days; in all he earned —— cents.
20. One dime is what part of 20 cents?

FIND SUMS.

28	46	53	25	29	44
32	24	17	15	31	16

1. One fifth of 10 is —. $\frac{1}{5}$ of 25 =
2. Two fifths of 10 are —. $\frac{2}{5}$ of 25 =
3. Three is one fifth of —. 5 is $\frac{1}{5}$ of —.
4. Six is two fifths of —. 10 is $\frac{2}{5}$ of —.
5. Five is — — of twenty-five.
6. Ten is — — of twenty-five.
7. Fifteen is — — of twenty-five.
8. Twenty is — — of twenty-five.

9. James pays 10¢ a dozen for eggs and sells them for 15¢ a dozen; on one dozen he gains — cents; on 5 dozen he gains — cents.

10. To-day is —. Three weeks from to-day will be —. 21 days from to-day will be —. 22 days from to-day will be —.

11. Henry earned a dime Monday, another dime Tuesday, and a "nickel" Wednesday; in all he earned — cents.

12. My horse eats a peck of oats each day; in 25 days he eats — bushels and — peck.

13. One dime is what part of 25 cents?

FIND DIFFERENCES.

40	30	20	50	60	70
28	26	24	27	29	25
—	—	—	—	—	—

Teach the following orally. Use objects.

3 nines = 27. 9 threes = 27.

1. Twenty-seven is —— nines. 2 nines =
2. Twenty-seven is —— threes. 8 threes =
3. Twenty-seven is 2 tens and ——.
4. Twenty-seven is 5 fives and ——.
5. Twenty-seven is 3 eights and ——.
6. Twenty-seven is 4 sixes and ——.
7. Twenty-seven feet are —— yards.
8. 27 inches are 2 feet and —— inches.
9. 27 pecks are 6 bushels and —— pecks.
10. 27 eggs are 2 dozen and —— eggs.
11. 27 days are 3 weeks and —— days.
12. 27 quarts are 6 gallons and —— quarts.
13. 27 dimes are 2 dollars and —— dimes.
14. 27 quarts are 3 pecks and —— quarts.
15. 27 cents are 2 dimes and —— cents.
16. Three is contained in 27 —— times.
17. Nine is contained in 27 —— times.
18. Two feet and 1 inch are —— inches.
19. Three weeks and 2 days are —— days.
20. Six bushels and 1 peck are —— pecks.
21. One dime and 3 "nickels" are —— cents.

FIND PRODUCTS.

22	23	24	25	26	27
3	3	3	3	3	3

NEW WORDS.

Helen
class
excused
remained
farmer
owned

1. One third of 24 is ——. $\frac{1}{3}$ of 27 =
2. Two thirds of 24 are ——. $\frac{2}{3}$ of 27 =
3. One ninth of 18 is ——. $\frac{1}{9}$ of 27 =
4. Two ninths of 18 are ——. $\frac{2}{9}$ of 27 =
5. Three is one third of ——. 9 is $\frac{1}{3}$ of ——.
6. Six is two thirds of ——. 18 is $\frac{2}{3}$ of ——.
7. Three is —— —— of twenty-seven.
8. Six is —— —— of twenty-seven.
9. Nine is —— —— of twenty-seven.
10. Twelve is —— —— of twenty-seven.
11. Mary had 27¢; she paid two thirds of her money for a book; she then had —— cents.
12. In Helen's class there are 27 girls; 6 were excused; —— remained.
13. A farmer owned 19 sheep; he bought 8 more; he then had —— sheep.
14. The quotient of 24 divided by 3 is ——.
15. The quotient of 27 divided by 3 is ——.

SLATE WORK.

(See page 67.)

27 quarts ÷ 3 quarts. 27 quarts ÷ 3.

Teach the following orally. Use objects.

4 sevens = 28. 7 fours = 28.

1. Twenty-eight is —— sevens. 3 sevens =
2. Twenty-eight is —— fours. 6 fours =
3. Twenty-eight is 2 tens and ——.
4. Twenty-eight is 3 nines and ——.
5. Twenty-eight is 5 fives and ——.
6. Twenty-eight is 4 sixes and ——.
7. Twenty-eight pecks are —— bushels.
8. Twenty-eight quarts are —— gallons.
9. Twenty-eight days are —— weeks.
10. 28 inches are 2 feet and —— inches.
11. 28 eggs are 2 dozen and —— eggs.
12. 28 dimes are 2 dollars and —— dimes.
13. 28 feet are 9 yards and —— foot.
14. 28 cents are 2 dimes and —— cents.
15. 29 cents are 2 dimes and —— cents.
16. 29 eggs are 2 dozen and —— eggs.
17. 29 pecks are 7 bushels and —— peck.
18. Two feet and 5 inches are —— inches.
19. Nine yards and 1 foot are —— feet.
20. Four weeks and 1 day are —— days.

SLATE WORK.

(See page 67.)

28 dollars ÷ 4 dollars. 28 dollars ÷ 4.

NEW WORDS.

hawk
killed
Bessie
Susan
gathering
mother

1. One fourth of 24 is —. $\frac{1}{4}$ of 28 =
2. Three fourths of 24 are —. $\frac{3}{4}$ of 28 =
3. One seventh of 21 is —. $\frac{1}{7}$ of 28 =
4. Two sevenths of 21 are —. $\frac{2}{7}$ of 28 =
5. Three is one fourth of —. 7 is $\frac{1}{4}$ of —.
6. Two is one seventh of —. 4 is $\frac{1}{7}$ of —.
7. Seven is — — of twenty-eight.
8. Fourteen is — — of twenty-eight.
9. Twenty-one is — — of twenty-eight.
10. Bessie had 28 chickens, a hawk killed 10 of them; she then had — chickens.
11. Susan's mother gave her one cent a day for gathering eggs; in four weeks she earned — cents.
12. In John's class there are 29 boys; 3 were excused; — remained.
13. A farmer owned 22 cows; he bought 7 more; he then had — cows.
14. Eddie's hens lay 4 eggs a day; in one week he gets — eggs.

SLATE WORK.

(See page 41.)

21 + 8. 21 − 8. 7 × 4.

Teach the following orally. Use objects.

5 sixes = 30. 6 fives = 30. 10 threes = 30.

1. Thirty is — fives. 5 fives =
2. Thirty is — sixes. 4 sixes =
3. Thirty is — threes. 9 threes =
4. Thirty is — tens. 2 tens =
5. Thirty is 3 nines and —.
6. Thirty is 3 eights and —.
7. Thirty is 4 sevens and —.
8. Thirty feet are — yards.
9. Thirty dimes are — dollars.
10. Thirty cents are — dimes.
11. 30 days are 4 weeks and — days.
12. 30 pecks are 7 bushels and — pecks.
13. 30 quarts are 3 pecks and — quarts.
14. 30 eggs are 2 dozen and — eggs.
15. 31 inches are 2 feet and — inches.
16. One half of a foot is — inches.
17. Two and one half feet are — inches.
18. Four weeks and 3 days are — days.
19. One third of a foot is — inches.
20. One and one third feet are — inches.

FIND SUMS.

50	50	60	50	70	60
50	60	60	70	70	70

NEW WORDS.

spool
thread
year
lives
east
west
home
apart
far
miles
Aurora
post-office

1. One fifth of 25 is —. $\frac{1}{5}$ of 30 =
2. Two fifths of 25 are —. $\frac{2}{5}$ of 30 =
3. One sixth of 24 is —. $\frac{1}{6}$ of 30 =
4. Two sixths of 24 are —. $\frac{2}{6}$ of 30 =
5. Three is one fifth of —. 6 is $\frac{1}{5}$ of —.
6. Two is one sixth of —. 5 is $\frac{1}{6}$ of —.
7. Six is — — of 30. 5 is $\frac{1}{3}$ of —.
8. Twelve is — — of 30. 6 is $\frac{1}{3}$ of —.
9. If six spools of thread cost 30¢, how many cents does 1 spool cost? One spool costs — cents.
10. Helen is 6 years old, and her mother is 5 times as old; her mother is — years old.
11. James lives 2 miles east of the Aurora post-office, and Henry lives 2 miles west of it. How far apart are their homes? Their homes are — miles apart.

FIND DIFFERENCES.

160	170	150	160	170
20	30	20	40	70

Teach the following orally. Use objects.

4 eights = 32. 8 fours = 32.

1. Thirty-two is — eights. 3 eights =
2. Thirty-two is — fours. 7 fours =
3. Thirty-two is 3 tens and —.
4. Thirty-two is 3 nines and —.
5. Thirty-two is 4 sevens and —.
6. Thirty-two is 5 sixes and —.
7. Thirty-two quarts are — pecks.
8. Thirty-two quarts are — bushel.
9. Thirty-two quarts are — gallons.
10. Two feet and 10 inches are — inches.
11. Two dozen and 9 eggs are — eggs.
12. Ten yards and 2 feet are — feet.
13. Three dimes and 4 cents are — cents.
14. Thirty-two divided by 8 equals —.
15. Twenty-four divided by 8 equals —.
I6. Sixteen divided by 8 equals —.
17. Eight multiplied by 4 equals —.
18. Eight multiplied by 3 equals —.
19. Eight multiplied by 2 equals —.
20. 8 times 4 = 4 times 8 =

FIND PRODUCTS.

20	50	30	40	60	70
5	4	4	3	2	2

1. One fourth of 28 is —. $\frac{1}{4}$ of 32 =
2. Three fourths of 28 are —. $\frac{3}{4}$ of 32 =
3. One eighth of 24 is —. $\frac{1}{8}$ of 32 =
4. Three eighths of 24 are —. $\frac{3}{8}$ of 32 =
5. Three is one fourth of —. 8 is $\frac{1}{4}$ of —.
6. Two is one eighth of —. 4 is $\frac{1}{8}$ of —.
7. Eight is — — of 32. 6 is $\frac{1}{4}$ of —.
8. Sixteen is — — of 32. 7 is $\frac{1}{4}$ of —.
9. William has 32 apples; to how many boys can he give 4 apples each? He can give 4 apples to each of — boys.
10. At 4¢ a quart, 1 gallon of milk costs — cents; 2 gallons cost — cents.
11. Mary had 32 chickens; a hawk killed one fourth of them; she then had — chickens.

$\left\{\begin{array}{l}\frac{1}{4} \text{ of } 8 \text{ is —.} \\ 8 \text{ is } \frac{1}{4} \text{ of —.}\end{array}\right.$

$\left\{\begin{array}{l}\frac{1}{2} \text{ of } 10 \text{ is —.} \\ 10 \text{ is } \frac{1}{2} \text{ of —.}\end{array}\right.$

SLATE WORK.

(See page 67.)

32 nuts ÷ 4 nuts. 32 nuts ÷ 4.

Teach the following orally. Use objects.

5 sevens = 35. 7 fives = 35.

1. Thirty-five is — sevens. 4 sevens =
2. Thirty-five is — fives. 6 fives =
3. Thirty-five is 4 eights and —.
4. Thirty-five is 3 nines and —.
5. Thirty-five is 5 sixes and —.
6. 35 pecks are 8 bushels and — pecks.
7. 35 quarts are 4 pecks and — quarts.
8. 35 quarts are 8 gallons and — quarts.
9. Two feet and 11 inches are — inches.
10. Two dozen and 11 eggs are — eggs.
11. If a doll costs 35 cents I can buy it for 3 dimes and — cents.
12. Arthur lives 3 miles east of the Aurora post-office, and Jane lives 5 miles east of it. How far apart are their homes? Their homes are — miles apart.

$\frac{1}{3}$ of 6 is —.
6 is $\frac{1}{3}$ of —.

$\frac{2}{3}$ of 6 are —.
6 is $\frac{2}{3}$ of —.

$\frac{2}{3}$ of 12 are —.
12 is $\frac{2}{3}$ of —.

$\frac{2}{3}$ of 18 are —.
18 is $\frac{2}{3}$ of —.

NEW WORDS.

ink bottle north south

1. One fifth of 30 is —. $\frac{1}{5}$ of 35 =
2. Two fifths of 30 are —. $\frac{2}{5}$ of 35 =
3. One seventh of 28 is —. $\frac{1}{7}$ of 35 =
4. Two sevenths of 28 are —. $\frac{2}{7}$ of 35 =
5. Seven is one fifth of —. 7 is $\frac{1}{4}$ of —.
6. Five is — — of 35. 4 is $\frac{1}{5}$ of —.
7. Ten is — — of 35. 5 is $\frac{1}{5}$ of —.

8. If 7 bottles of ink cost 35¢, one bottle costs — cents; 2 bottles cost — cents; three bottles cost — cents.

9. James has 35 nuts; to how many boys can he give 5 nuts each? He can give 5 nuts to each of — boys.

10. George lives 3 miles north of the Aurora post-office, and Peter lives 5 miles south of it. How far apart are their homes? Their homes are — miles apart.

SLATE WORK.

(See page 67.)

35 cookies ÷ 5 cookies. 35 cookies ÷ 5.

Teach the following orally. Use objects.
4 nines = 36. 6 sixes = 36.
9 fours = 36. 3 twelves = 36.

1. Thirty-six is — nines. 3 nines =
2. Thirty-six is — fours. 8 fours =
3. Thirty-six is — sixes. 5 sixes =
4. Thirty-six is — twelves. 2 twelves =
5. Thirty-six is 4 eights and —.
6. Thirty-six is 5 sevens and —.
7. Thirty-six pecks are — bushels.
8. Thirty-six quarts are — gallons.
9. 36 days are 5 weeks and — day.
10. 37 days are 5 weeks and — days.
11. 37 eggs are 3 dozen and — egg.
12. 38 eggs are 3 dozen and — eggs.
13. 38 inches are 3 feet and — inches.
14. 39 inches are 3 feet and — inches.
15. 3 dimes and 9 cents are — cents.
16. 5 weeks and 3 days are — days.
17. A farmer owned 29 horses; he bought 7 more; he then had — horses.
18. Samuel had 38 marbles; he sold 10 of them; he then had — marbles.
19. Jane has 9 chickens; Mary has 3 times as many; Mary has — chickens. Jane and Mary together have — chickens.

1. One fourth of 32 is —. $\frac{1}{4}$ of 36 =
2. One ninth of 27 is —. $\frac{1}{9}$ of 36 =
3. Two ninths of 27 are —. $\frac{2}{9}$ of 36 =
4. One sixth of 30 is —. $\frac{1}{6}$ of 36 =
5. Five sixths of 30 are —. $\frac{5}{6}$ of 36 =
6. Six is — — of 36. 5 is $\frac{1}{6}$ of —.
7. Four is — — of 36. 4 is $\frac{1}{6}$ of —.

8. Four boys together gathered 36 quarts of nuts; they divided them equally among themselves; each boy had — quarts.

9. The sum of two numbers is 36; one of the numbers is 29; the other number is —.

10. A farmer had 37 sheep; he sold 10 of them; he then had — sheep.

11. Jane earned 9 cents; Henry earned 4 times as much; Henry earned — cents.

12. George has 36 cents; William has 1 cent more than one fourth as much; William has — cents.

FIND SUMS.

54	65	46	58	75	47
64	65	76	64	36	85

Teach the following orally. Use objects.

5 eights = 40. 8 fives = 40.

NEW WORDS.

Frank cloth hazelnuts

1. Forty is — eights. 4 eights =
2. Forty is — fives. 7 fives =
3. Forty is 6 sixes and —.
4. Forty is 5 sevens and —.
5. 40 days are 5 weeks and — days.
6. 40 inches are 3 feet and — inches.
7. 41 eggs are 3 dozen and — eggs.
8. One fourth of 36 is —. $\frac{1}{4}$ of 40 =
9. One fifth of 35 is —. $\frac{1}{5}$ of 40 =
10. One eighth of 32 is —. $\frac{1}{8}$ of 40 =
11. When bananas are 5¢ apiece, 40¢ will pay for — bananas.
12. I paid 30¢ for $\frac{3}{4}$ of a yard of cloth. One yard would have cost — cents.
13. Frank sold a peck of hazelnuts at 5¢ a quart; he received — cents.
14. When cloth is 40¢ a yard, one half a yard costs — cents.

FIND DIFFERENCES.

275	140	252	344	356
38	26	81	122	128

Teach the following orally. Use objects.

6 sevens = 42. 7 sixes = 42.

1. Forty-two is — — sevens. 5 sevens =
2. Forty-two is — sixes. 6 sixes =
3. Forty-two is 5 eights and —.
4. Forty-two is 4 nines and —.
5. Forty-two days are — weeks.
6. 42 inches are 3 feet and — inches.
7. 43 eggs are 3 dozen and — eggs.
8. 44 quarts are 5 pecks and — quarts.
9. One sixth of 36 is —. $\frac{1}{6}$ of 42 =
10. One seventh of 35 is —. $\frac{1}{7}$ of 42 =
11. James Brown earns $6 a week; in two weeks he earns — dollars; in three weeks he earns — dollars; in seven weeks he — dollars.
12. When eggs are 7¢ a dozen, for 21¢, I can buy — dozen; for 35¢, I can buy — dozen; for 42¢, I can buy — dozen.
13. The difference between two numbers is 6; the smaller number is 38; the larger number is —.

FIND PRODUCTS.

26	34	43	52	64	72
5	4	5	5	3	4
—	—	—	—	—	—

Teach the following orally. Use objects.
5 nines = 45. 9 fives = 45.

1. Forty-five is — nines. 4 nines =
2. Forty-five is — fives. 8 fives =
3. Forty-five is 5 eights and —.
4. Forty-five is 6 sevens and —.
5. 45 days are 6 weeks and — days.
6. 45 inches are 3 feet and — inches.
7. 46 eggs are 3 dozen and — eggs.
8. 45 cents are 4 dimes and — cents.
9. 47 dimes are 4 dollars and — dimes.
10. One fifth of 40 is —. $\frac{1}{5}$ of 45 =
11. One ninth of 36 is —. $\frac{1}{9}$ of 45 =
12. Five is — — of 45. 5 is $\frac{1}{8}$ of —.
13. Ten is — — of 45. 10 is $\frac{2}{8}$ of —.
14. William lives 10 miles south of the Aurora post-office, and Frank lives 20 miles south of it. How far apart are their homes? Their homes are — miles apart.
15. Sarah had 45 chickens; two ninths of them died; she then had — chickens.
16. One ninth of 45 is — — of 40.

SLATE WORK.
(See page 67.)

40 cents ÷ 5 cents. 40 cents ÷ 5.

Review pages 38 and 69.

FOR DRILL.

Read rapidly (1) by column downwards, (2) by column upwards, and (3) by line. Continue this drill until pupils can read the page by line *in 2 minutes.*

3 times 7 are —.
3 times 8 are —.
3 times 9 are —.
3 times 10 are —.
4 times 6 are —.
4 times 7 are —.
4 times 8 are —.
4 times 9 are —.
4 times 10 are —.
5 times 5 are —.
5 times 6 are —.
5 times 7 are —.
5 times 8 are —.
5 times 9 are —.
5 times 10 are —.

5 tens are —.
4 tens are —.
3 tens are —.
5 nines are —.
4 nines are —.
3 nines are —.
5 eights are —.
4 eights are —.
3 eights are —.
5 sevens are —.
4 sevens are —.
3 sevens are —.
5 sixes are —.
4 sixes are —.
5 fives are —.

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1. Five times 9 cents are — cents.
2. Five times 7 miles are — miles.
3. Four times 6 pecks are — pecks.
4. Four times 8 days are — days.
5. Three times 7 inches are — inches.

Teach the following orally. Use objects.

$1 = \frac{2}{2}$. $1 = \frac{4}{4}$. $1 = \frac{8}{8}$. $\frac{1}{2} = \frac{2}{4}$. $\frac{1}{2} = \frac{4}{8}$.

1. $\frac{1}{2} + \frac{1}{4}$. (See page 41.)

(a) $\frac{1}{2} + \frac{1}{4}$ means, take $\frac{1}{2}$ and $\frac{1}{4}$.
(b) $\frac{1}{2}$ and $\frac{1}{4}$ are —— ——.
(c) John ate $\frac{1}{2}$ of a pie; Henry ate $\frac{1}{4}$ of a pie; together they ate —— —— of a pie.

2. $\frac{3}{4} - \frac{1}{2}$. (See page 41.)

(a) $\frac{3}{4} - \frac{1}{2}$ means, take $\frac{3}{4}$ less $\frac{1}{2}$.
(b) $\frac{3}{4}$ less $\frac{1}{2}$ is —— ——.
(c) Mary had $\frac{3}{4}$ of a pie; she gave $\frac{1}{2}$ of a pie to her brother; she then had —— —— of a pie.

3. $\frac{1}{2} \times 4$. (See page 41.)

(a) $\frac{1}{2} \times 4$ means, take 4 $\frac{1}{2}$'s.
(b) 4 times $\frac{1}{2}$ are —— ——.
(c) Mrs. Brown gave $\frac{1}{2}$ of a pie to each of 4 beggars; to all she gave —— pies.

4. 4 pecks $\div \frac{1}{2}$ peck. (See page 67.)

(a) 4 pecks $\div \frac{1}{2}$ peck, means, find how many times $\frac{1}{2}$ peck is contained in 4 pecks.
(b) $\frac{1}{2}$ peck is contained in 4 pecks —— times.
(c) John's pony eats $\frac{1}{2}$ of a peck of oats a day; 4 pecks will last him —— days.

5. $\frac{1}{2}$ bushel $\div$ 4. (See page 67.)

(a) $\frac{1}{2}$ bushel $\div$ 4 means, find $\frac{1}{4}$ of $\frac{1}{2}$ bushel.
(b) $\frac{1}{4}$ of $\frac{1}{2}$ bushel is —— —— —— —— ——.
(c) Sam divided $\frac{1}{2}$ bushel of oats equally among 4 ponies; each pony had —— —— of a bushel.

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